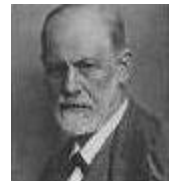
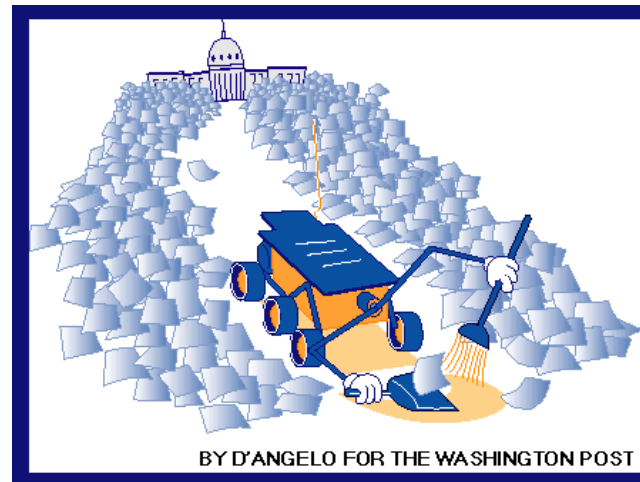


# NASA Hardware Management Using Process Libraries and Electronic Handbooks

(Where Shakespeare Meets Freud)



## Summary



Dr. Barry E. Jacobs  
[barry.e.jacobs@comcast.net](mailto:barry.e.jacobs@comcast.net)

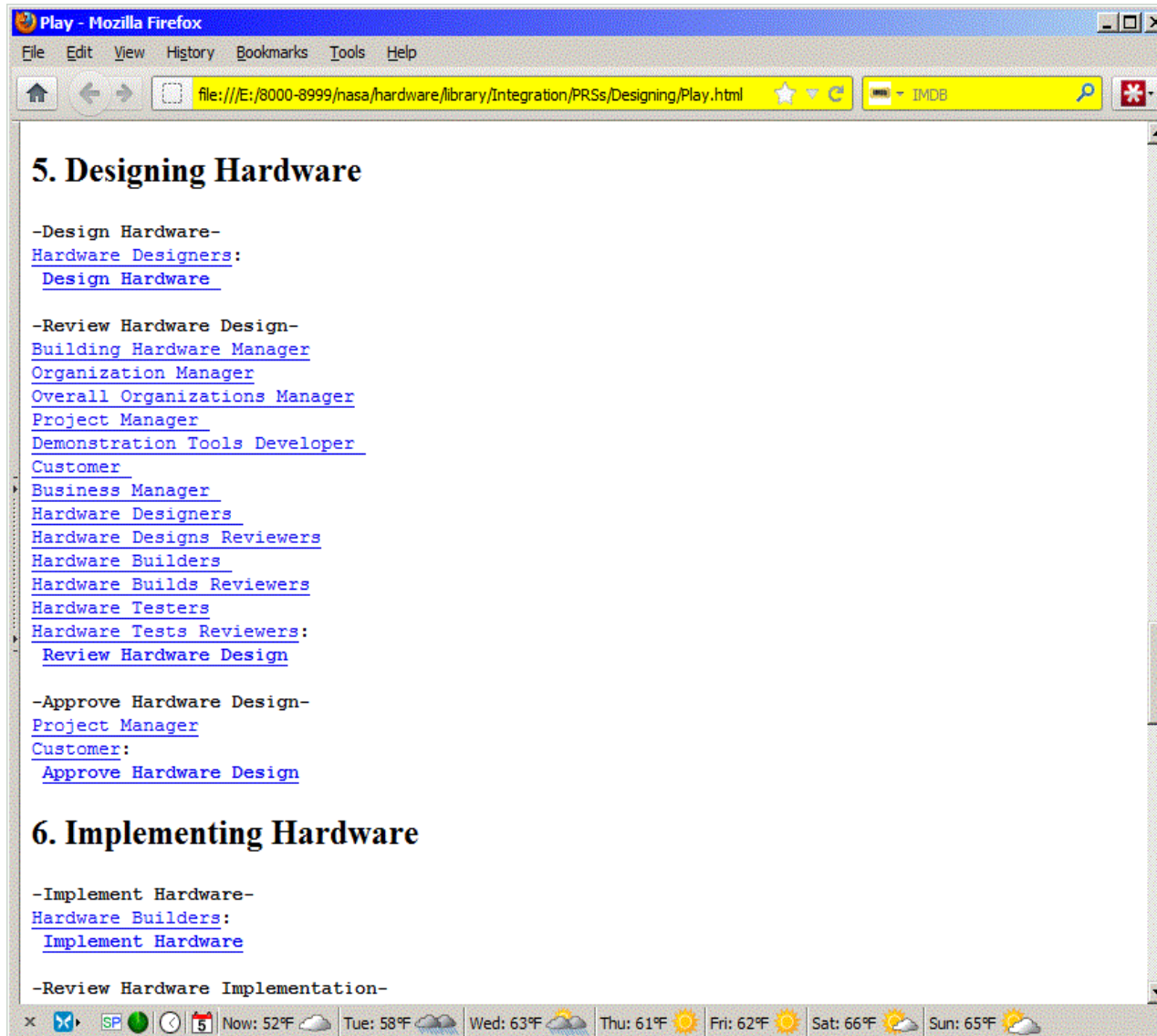
## **The Bottom Line:**

**We believe that to truly understand one's universe, one must see it thru multiple “eyes” and also have tools to “communicate” these views.**

**To do this, we propose editable and cost-saving process documentation “plays”  
for process developers and participants  
to help them quickly and effectively learn, integrate, test,  
teach, and work together.**

**These “plays” may be added to new or existing systems.**

# Plays describe subprocess execution.



## **Benefits:**

- Facilitates the collection of system and organizational requirements,**
  - Does not anger/upset people whose opinions are heard,**
- and**
- Increases the interaction between managers, process developers, and participants.**

**For each subprocess, an “Integration View” is the integration or combination of other subprocess views. An “Integration View” facilitates intra- and inter-organization communication.**



# **All the world's a stage ...**

**Jaques:**

**All the world's a stage,  
And all the men and women merely players;  
They have their exits and their entrances,  
And one man in his time plays many parts,  
His acts being seven ages.**

**William Shakespeare**

**As You Like It, Act 2, Scene 7.**

**The approach uses a modernization of the Socratic Method or Dialogue to gain consensus between Teachers, Documentors, Managers, Implementors, and Participants.**





Designing Hardware

## Table of Contents

- [Overview](#)
- [Play](#)
- [Documents](#)
- [Guidelines](#)
- [Others](#)

## 1. Overview

In this subprocess, we deal with the process of Building Hardware. This is where Projects design, build, and test their Hardware.

**Organization:** ORG

[All-Files](#). These are all the view files.

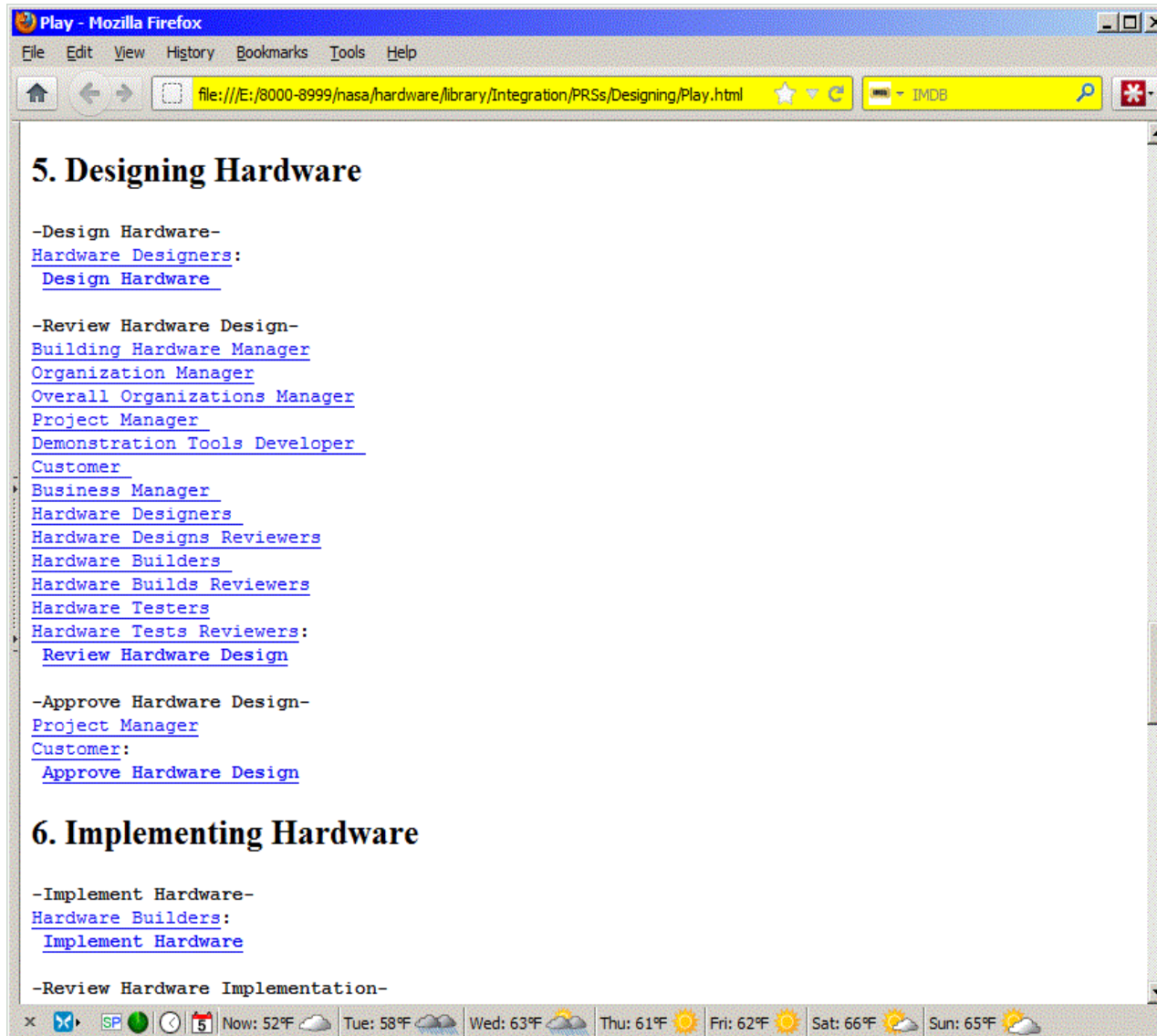
[Benefits](#)

## 2. Play

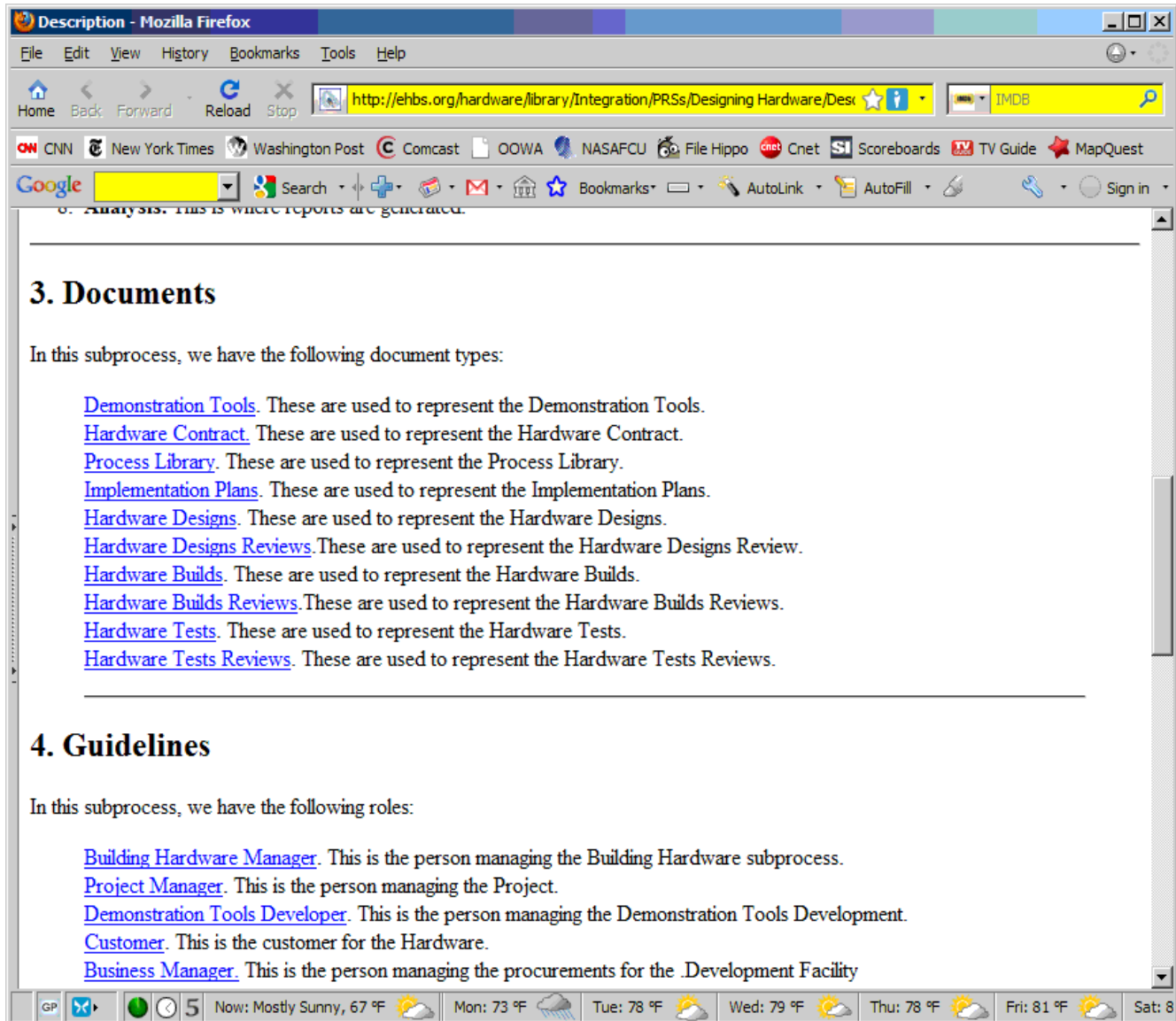
In this subprocess, the play is divided in several parts:



# Plays describe subprocess execution.



# Documents describe subprocess data.



**3. Documents**

In this subprocess, we have the following document types:

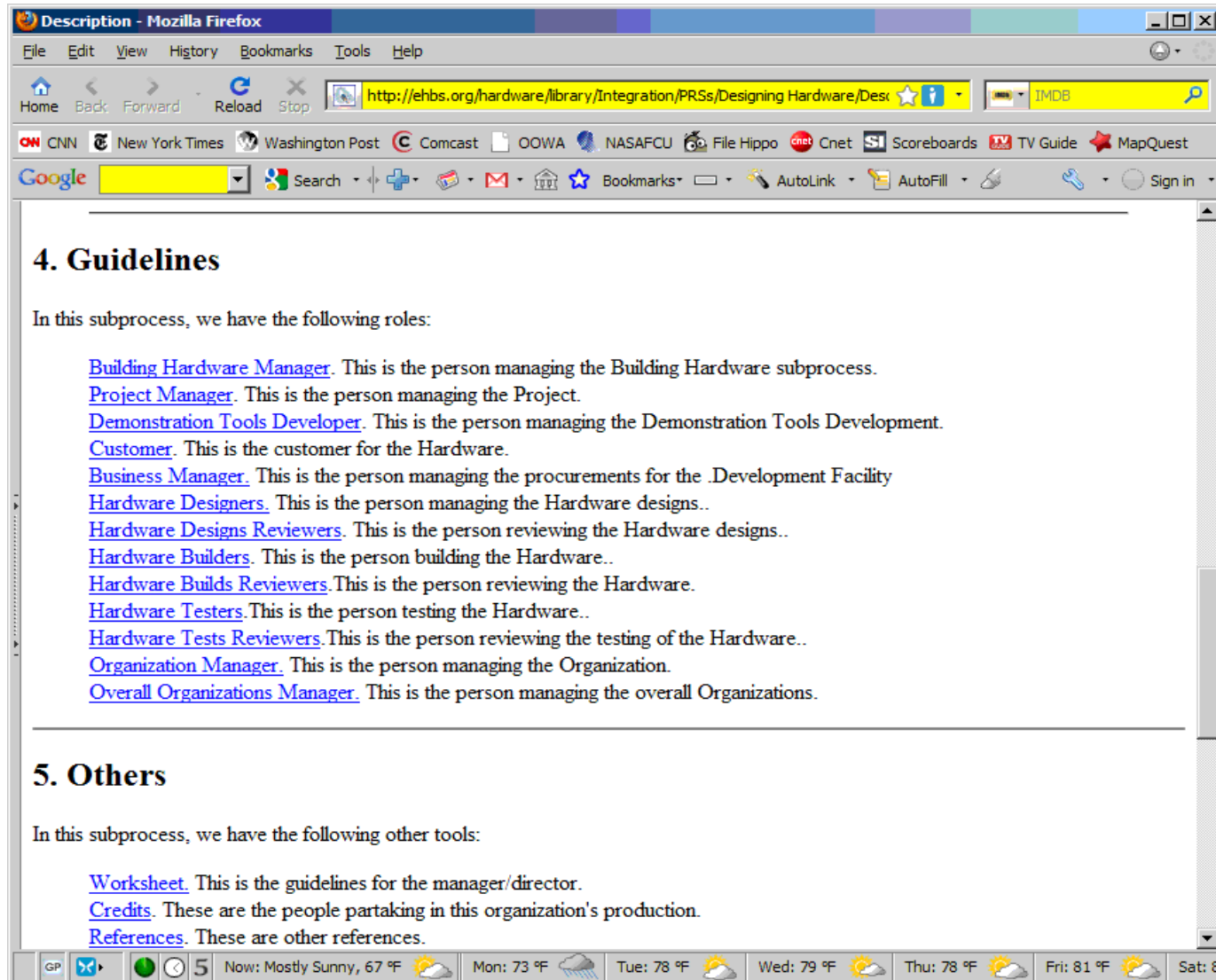
- [Demonstration Tools](#). These are used to represent the Demonstration Tools.
- [Hardware Contract](#). These are used to represent the Hardware Contract.
- [Process Library](#). These are used to represent the Process Library.
- [Implementation Plans](#). These are used to represent the Implementation Plans.
- [Hardware Designs](#). These are used to represent the Hardware Designs.
- [Hardware Designs Reviews](#). These are used to represent the Hardware Designs Review.
- [Hardware Builds](#). These are used to represent the Hardware Builds.
- [Hardware Builds Reviews](#). These are used to represent the Hardware Builds Reviews.
- [Hardware Tests](#). These are used to represent the Hardware Tests.
- [Hardware Tests Reviews](#). These are used to represent the Hardware Tests Reviews.

**4. Guidelines**

In this subprocess, we have the following roles:

- [Building Hardware Manager](#). This is the person managing the Building Hardware subprocess.
- [Project Manager](#). This is the person managing the Project.
- [Demonstration Tools Developer](#). This is the person managing the Demonstration Tools Development.
- [Customer](#). This is the customer for the Hardware.
- [Business Manager](#). This is the person managing the procurements for the .Development Facility

# Guidelines describe user subprocesses.



**4. Guidelines**

In this subprocess, we have the following roles:

- [Building Hardware Manager](#). This is the person managing the Building Hardware subprocess.
- [Project Manager](#). This is the person managing the Project.
- [Demonstration Tools Developer](#). This is the person managing the Demonstration Tools Development.
- [Customer](#). This is the customer for the Hardware.
- [Business Manager](#). This is the person managing the procurements for the .Development Facility
- [Hardware Designers](#). This is the person managing the Hardware designs..
- [Hardware Designs Reviewers](#). This is the person reviewing the Hardware designs..
- [Hardware Builders](#). This is the person building the Hardware..
- [Hardware Builds Reviewers](#). This is the person reviewing the Hardware..
- [Hardware Testers](#). This is the person testing the Hardware..
- [Hardware Tests Reviewers](#). This is the person reviewing the testing of the Hardware..
- [Organization Manager](#). This is the person managing the Organization.
- [Overall Organizations Manager](#). This is the person managing the overall Organizations.

**5. Others**

In this subprocess, we have the following other tools:

- [Worksheet](#). This is the guidelines for the manager/director.
- [Credits](#). These are the people partaking in this organization's production.
- [References](#). These are other references.

# Subprocess Worksheets facilitate subprocess manager communication with process developers and participants.

Worksheet - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Home Back Forward Reload Print Stop file:///E:/8000-8999/nasa/hardware/summary/mockups/Worksheet.htm

## Subprocess Worksheet

**Subprocess:** Designing Hardware

**Purpose:** The purpose of this subprocess is to design Hardware.

**Organization:** IMAGE

Task	Purpose	Suggested Roles	Task Lead(s)	Estimated Completion Date	Actual Completion Date	Documents					
						Document	Instructions and Samples	Document Lead(s)	Estimated Completion Date	Actual Completion Date	Document Location(s)
Administration	The purpose of this task is to administer the design of Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official, Project Manager, Documents Manager	James Green	07/23/07	08/23/07	Document Library	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
Planning	The purpose of this task is to plan the design of Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official, Project Manager, Documents Manager	James Green	06/23/07	06/23/07	Planning Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Draft Project Requirements Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Project Plan	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
Designing Hardware	The purpose of this task is to design the Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official, Project Manager, Documents Manager	James Green	07/23/07	078/23/07	Design Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Project Plan	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Review Forms	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034

Do... Now: Sunny, 75° F Tue: 87° F Wed: 85° F Thu: 85° F Fri: 85° F Sat: 87° F Sun: 84° F

# References list other related resources.



# Credits acknowledge people's contributions.



# Tools that can be focused on during stages- by tool.

Tools To Focus On During Stages. - Mozilla Firefox

File Edit View History Bookmarks Tools Help

ehbs.org/intro/summary/stages1.html

Google

## Tools To Focus On During Stages- By Tool.

Tool	Process Developer	Process Participant
Descriptions:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Plays:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Documents:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Role Guidelines/EHBs:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Subprocess: Worksheets:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
References:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Credits:	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together



# Tools that can be focused on during stages- by stage.

Tools To Focus On During Stages. - Mozilla Firefox

File Edit View History Bookmarks Tools Help

ehbs.org/intro/summary/stages2.html

Google

### Tools To Focus On During Stages- By Stage.

Stage	Process Developer	Process Participant
Learn	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Integrate	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Documents Using Role Guidelines/EHBs.
Test	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Teach	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Work Together	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.

## **Outline of Presentation:**

- The Bottom Line-**
- Objectives-**
- Solution-**
- Where Shakespeare Meets Freud-**
- Some Applications-**
- Things Supported-**
- Examples-**
- Final Thoughts-**

# Objective:

## Develop Internet-based tools to support the paperless documentation and management of complex distributed processes.

Subprocesses - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Home Back Forward Reload Stop <http://lincoln.gsfc.nasa.gov/hardware/whatare/process.htm> Webster

### Hardware

Product Realization Subprocesses												
Integrated Problems-Solutions Database	Planning Hardware	Hardware Development Facility Solicitation Development	Submission	Handling	Gathering Requirements	Designing Hardware	Building Hardware	Using Hardware	Improving Hardware	Revising Hardware	Closing Hardware	Post-Closeout

(Potential Customers: Flight Projects)

Product Distribution Subprocesses							
Integrated Problems-Solutions Database	Planning Distributions	Distribution Facility Solicitation Development	Problem Submission	Problem Handling	Agreement Administration	Agreement Closeout	Post-Agreement Closeout

(Potential Customers: Flight Projects, Non-NASA Customers)

Support Subprocesses								
Survey Management	Computer Systems Development and Evolution	Computer Systems Operations and Network Administration	Home Page Management	Education and Outreach Activities	Facilities Management	Security	Small Systems (Mac and PC) Support	Visualizations

Improvement Subprocesses		
ISO 9001: 2000	CMMI- Staged	CMMI- Continuous

Common Subprocesses					
Organization Subprocess Formulation	Organization Subprocess Implementation	Organization Subprocess Customer Support	Organization Subprocess Evaluation	Organization Subprocess Update	Organization Subprocess Closeout

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Organizations provide different views of the subprocesses, some of which may be proprietary.

NASA Hardware Management Organizations - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://ehbs.org/hardware/whatare/Organizations.htm

CNN New York Times Washington Post Comcast Summaries Process Libraries File Hippo NASAFCU Bandwidth SI Scoreboards

Google Search PageRank ABC Check AutoLink AutoFill Subscribe Options

NASA Hardware EHBs Subprocesses What are EHBs? NASA Hardware Managem...

## NASA Hardware Management Organizations

Product Realization Subprocesses Organizations
Advanced Composition Explorer (ACE)
ACREMSAT Mission
Aura Mission
Cassini-Huygens Mission
Chandra X-ray Observatory
Cosmic Hot Interstellar Plasma Spectrometer (CHIPS)
Cluster ESA/NASA Mission
Deep Impact
ISS Expedition 10
Fast Auroral Snapshot Explorer (FAST)
Far Ultraviolet Spectroscopic Explorer (FUSE) Mission
Galaxy Evolution Explorer (GALEX) Mission
Genesis Mission
Geotail Mission
Gravity Probe B (GPB) Mission
Gravity Recovery and Climate Experiment
High Energy Transient Explorer-2 (HETE-2) Mission
Hubble Space Telescope
Ice Cloud and Land Elevation Satellite (ICESat) Mission
Imager for Magnetopause-to-Aurora Global Exploration (IMAGE)
INTERNational Gamma-Ray Astrophysics Laboratory (INTEGRAL)
Mars Express
Mars Exploration Rover - Opportunity
Mars Exploration Rover - Spirit
Mars Global Surveyor
Mars Odyssey
MERCURY, Surface, Space Experiment, GEochemistry and Ranging (MESSENGER) Mission
Muses-C
NOAA-M Environmental Satellite
Polar Mission
Reuven Ramaty High Energy Solar Spectroscopic Imager (RHES) Mission
Rosetta Mission
Rosetta X-ray Timing Explorer (RXTE) Mission
Solar Anomalous and Magnetospheric Particle Explorer (SAMPEX) Mission
SeaWiFS

Done 0.351s McAfee SiteAdvisor Now: Mostly Cloudy, 49° F Fri: 51° F Sat: 60° F Sun: 56° F Mon: 65° F

# **Organizations execute the eight “Play Development” stages.**

- 1) summarizing (descriptions),**
- 2) playwriting (outlines),**
- 3) staging (mockups),**
- 4) dress rehearsal (implementations),**
- 5) performance (implementations),**
- 6) evaluations (implementations),**
- 7) revisions (outlines, mockups, implementations),**
- and**
- 8) closing.**

# People in organizations provide different views of the subprocesses



**Subprocess  
Documentor's  
View**



**Subprocess Teacher's,  
Manager's, Implementor's  
and Participant's Views**

# **Organizations generate Subprocess Life-Cycle\* Views**

- **Organization subprocess teachers want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)**
- **Organization subprocess documentors want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)**
- **Organization subprocess managers want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)**
- **Organization subprocess implementors want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)**
- **Organization subprocess participants want to quickly learn, integrate, and perform tasks that are part of their views. (Critical)**
- **Organization subprocess managers want to quickly monitor execution of tasks that are part of their views.**
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly improve, test, and teach their subprocesses.**
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly improve, test, and teach using other organization's views.**
- **Organization subprocess teachers, documentors, managers, implementors, and participants become hurt/angry when their views are not supported.**
- **Organization subprocess implementors want to quickly update, test, and teach tools that help facilitate execution of their subprocesses.**
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly leave when their views continue not to be supported.**

**\* Also, called the "Universal Subprocess".**



# The "Game of Telephone" Syndrome: Where People Pass-On Only Parts of the "Message"



# Overview of how editable and cost-saving process documentation tools can solve problems.

Problem	Solution
<b>Develop Internet-based tools to support the paperless documentation and management of complex distributed processes.</b>	<b>Editable process documentation tools can be tailored to each subprocess.</b>
<b>Organizations provide different views of the subprocesses.</b>	<b>Editable process documentation tools can be tailored to reflect different organization's views of the subprocess.</b>
<b>Organizations execute the eight "play development" stages.</b>	<b>Editable process documentation tools can be tailored to reflect the eight "play development" stages.</b>
<b>People in organizations provide different views of the subprocesses.</b>	<b>Editable process documentation tools can be tailored to communicate different people's views of the subprocess.</b>
<b>Organizations generate Subprocess Life-Cycle Views.</b>	<b>Editable process documentation tools can be tailored to reflect different Life-Cycle views of the subprocess.</b>
<b>The "Game of Telephone" Syndrome: Where People Pass-On Only Parts of the "Message".</b>	<b>Editable process documentation tools can be tailored to layer below different people's views of the subprocess.</b>

# Solution: Process Libraries maintain organization's views of the subprocesses.

Views - Mozilla Firefox

File Edit View History Bookmarks Tools Help

file:///E:/8000-8999/nasa/hardware/summary/mockups/views.htm

CNN New York Times Washington Post Comcast File Hippo Summaries Process Libraries NASAFCU Scoreboards Bandwidth

Google Search

## Views

Total 30 Entries

Classification: **Product Realization Subprocesses** (T4-00-00-00)

Subprocess: **Designing Hardware** (T4-08-00-00)

[Create View](#)

View	Steps
<a href="#">ASTRO-E2</a> Don Margolies (Don.Margolies@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">CHIPS</a> Dave Pierce (Dave.Pierce@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">CINDI/TWINS</a> Jim Byrd (Jim.Byrd@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">Constellation-X</a> Liz Citri (Liz.Citri@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">ESDIS</a> MaryAnn Esfandiari (MaryAnn.Esfandiari@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">EO-1</a> Bryant Cramer (Bryant.Cramer@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">EOS AURA</a>	<a href="#">Update</a>

Done Now: Mostly Sunny, 69° F Sat: 76° F Sun: 82° F Mon: 78° F Tue: 74° F Wed: 69° F

**Our basic approach is to wrap organization's subprocesses in a common envelope containing “communication vehicles” that facilitate intra- and inter-organization communication.**



# Tools that can be focused on during stages- by tool.

Tools To Focus On During Stages. - Mozilla Firefox

File Edit View History Bookmarks Tools Help

ehbs.org/intro/summary/stages1.html

Google

### Tools To Focus On During Stages- By Tool.

Tool	Process Developer	Process Participant
Descriptions	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Plays	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Documents	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Role Guidelines/EHBs	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Subprocesses Worksheets	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
References	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together
Credits	Learn, Integrate, Test, Teach, Work Together	Learn, Integrate Documents Using Role Guidelines/EHBs, Test, Teach, Work Together

# Tools that can be focused on during stages- by stage.

Tools To Focus On During Stages. - Mozilla Firefox

File Edit View History Bookmarks Tools Help

ehbs.org/intro/summary/stages2.html

Google

### Tools To Focus On During Stages- By Stage.

Stage	Process Developer	Process Participant
Learn	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Integrate	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Documents Using Role Guidelines/EHBs.
Test	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Teach	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.
Work Together	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.	Descriptions, Plays, Documents, Role Guidelines/EHBs, Subprocess Worksheets, References, and Credits.



**For each subprocess, an “Integration View” is the integration or combination of other subprocess views. An “Integration View” facilitates intra- and inter-organization communication.**







# Process Libraries (PLs) and Electronic Handbooks (EHBs) are where Shakespeare meets Freud.



- In Process Libraries (PLs), subprocesses are represented as "plays" where "actors" communicate thru the Internet. Each organization puts on its own "productions". For each role, Electronic Handbooks (EHBs) (also called Guidelines) guide "actors" thru their parts. Managers are "directors" using Worksheets as learning/management tools. Documentors serve as "playwrights". [Shakespearean]
- Organizations are represented as "families" having "multiple personalities". Subprocess "plays" and its "components" provide communication vehicles between members of the same family, different families, and families from different subprocesses. Documentors also serve as "family therapists". [Freudian]

**The approach uses a modernization of the Socratic Method or Dialogue to gain consensus between Teachers, Documentors, Managers, Implementors, and Participants.**







# Subprocess Life-Cycle Views that are supported.

- **Organization subprocess teachers want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)** Organization subprocess teachers copy relevant organization subprocess Plays/Documents/Guidelines/Worksheets in the Process Library and then learn, integrate, test, and teach their new organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess documentors want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)** Organization subprocess documentors copy relevant organization subprocess Plays/Documents/Guidelines/Worksheets in the Process Library and then learn, integrate, test, and teach their new organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess managers want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)** Organization subprocess managers copy relevant organization subprocess Plays/Documents/Guidelines/Worksheets in the Process Library and then learn, integrate, test, and teach their new organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess implementors want to quickly learn, integrate, test, and teach their own views of their subprocesses. (Critical)** Organization subprocess implementors copy relevant organization subprocess Plays/Documents/Guidelines/Worksheets in the Process Library and then learn, integrate, test, and teach their new organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess participants want to quickly learn, integrate, and perform tasks that are part of their views. (Critical)** Organization subprocess participants study the steps of their organization subprocess view Guidelines.
- **Organization subprocess managers want to quickly monitor execution of tasks that are part of their views.** Organization subprocess managers monitor the execution of tasks using their organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly update, test and teach their subprocesses.** Organization subprocess teachers, documentors, managers, implementors, and participants update, test, and teach their organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly update, test, and teach using other organization's views.** Organization subprocess teachers, documentors, managers, implementors, and participants update, test, and teach using other relevant organization subprocess Plays/Documents/Guidelines/Worksheets in the Process Library.
- **Organization subprocess teachers, documentors, managers, implementors, and participants become hurt/angry when their views are not supported.** Organization subprocess teachers, documentors, managers, implementors, and participants update, test, and teach their organization subprocess Plays/Documents/Guidelines/Worksheets.
- **Organization subprocess implementors want to quickly update, test and teach tools that help facilitate execution of their subprocesses.** Organization subprocess implementors update, test, and teach tools using requirements from Plays/Documents/Guidelines/Worksheets in the Process Library.
- **Organization subprocess teachers, documentors, managers, implementors, and participants want to quickly leave when their views continue not to be supported.** Organization subprocess teachers, documentors, managers, implementors, and participants archive their organization subprocess Plays/Documents/Guidelines/Worksheets.
- **The Key Human Factor Issue: Communication Within and Across Organizations.** Organization subprocess Plays/Documents/Guidelines/Worksheets in Process Libraries facilitate intra- and inter-organization communication.

# Basic People Principles that are supported.

- Subprocesses determine tools.** The approach supports people doing their jobs as they see it. Forcing additional tools on people only adds more burdens to their jobs and they will likely ignore them. Additional requirements should be integrated into existing subprocesses.
- Everyone's subprocesses should be supported as best as possible.** The approach supports people seeing their jobs differently. This is often a good thing for subprocess improvement.
- Tools are role-based so that data is collected during subprocess execution.** As people partake in the subprocesses, the approach supports data entry in the system. If data collection is done after the fact, the quality of the data generally suffers.
- Tools are people-based so that users require minimal training.** The approach helps people to determine which steps to use. For each of the substeps (i.e., forms and documents), the approach should have clear templates, instructions, and samples.
- Tools are web-based so that all users can easily partake.** The web-based approach supports the reduced need to install special software on user's computers. This is especially important in the case where the number of participants is large.
- Everyone helps build the tools.** The approach supports joint ownership in the subprocesses and the underlying systems which is crucial for overall acceptance.

# Subprocess/Play Developments that are supported.

- **Presentation & Paper/Marketing.** The approach supports presentation & paper/marketing using the contents of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Worksheet/Outlining.** The approach supports worksheet/outlining using the drafting of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Temporal Flow/Playwriting.** The approach supports temporal flow/playwriting using the drafting of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Examples/Rehearsal.** The approach supports examples/rehearsals using the mockups of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Implementation/Staging.** The approach supports implementation/staging using the building of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Utilization/Performance.** The approach supports users utilization/performance using execution of Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Revision/New Production.** The approach supports revision/new production using updates of the Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.
- **Closeout/End Production.** The approach supports closeout/ end performance using storage of the Descriptions, Plays, Documents, Guidelines, Worksheets, Contacts, References, and Credits.

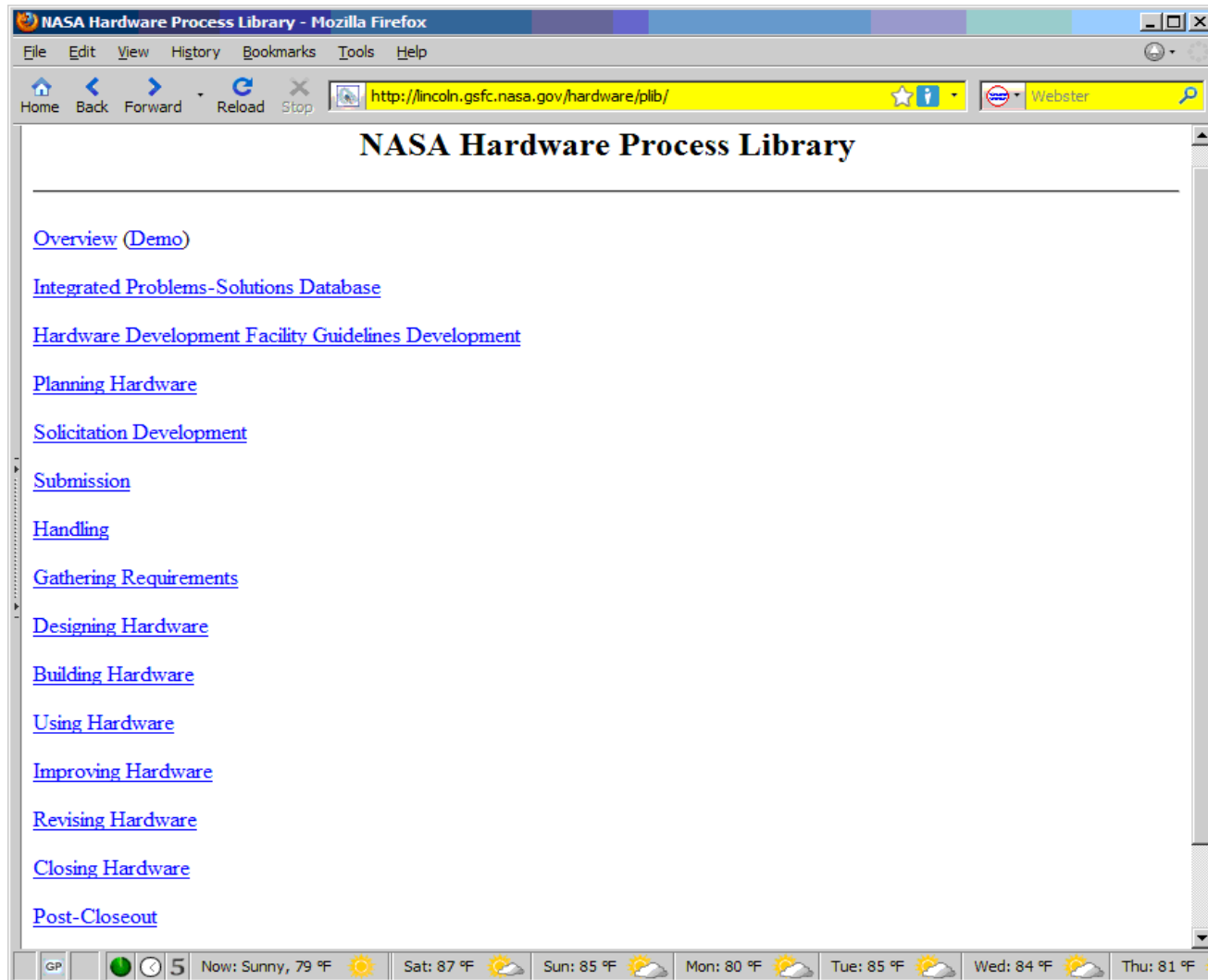
# Process Library Operations that are supported.

- **Organization Subprocess Formulation.** The approach supports the introduction of new organizations and their subprocesses into the library.
- **Organization Subprocess Implementation.** The approach supports implementation of common tools for organizations in the library.
- **Organization Subprocess Customer Support.** The approach supports user requests for the library.
- **Organization Subprocess Evaluation.** The approach supports organization subprocess evaluations.
- **Organization Subprocess Update.** The approach supports the updating of organizations and their subprocesses in the library.
- **Organization Subprocess Closeout.** The approach supports the closeouts of organizations and their subprocesses from the library.

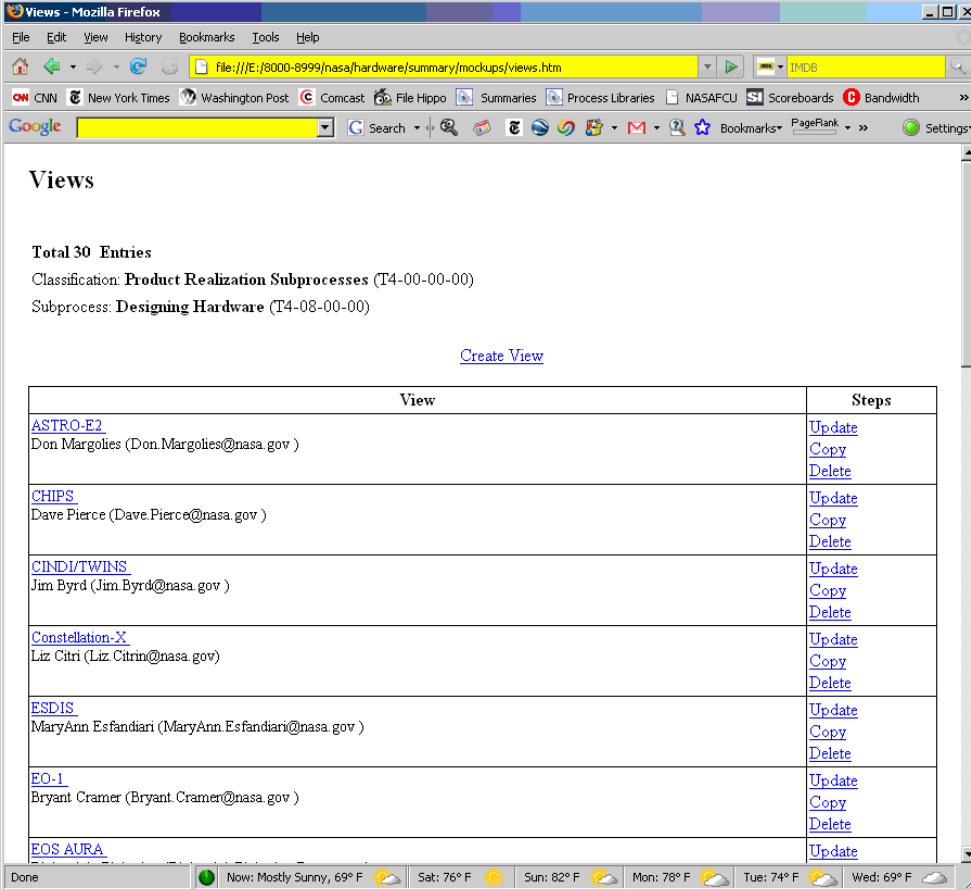


# Examples

# Process Libraries are organized by subprocesses.



# View Tools show how organizations view their subprocesses.



The screenshot shows a Mozilla Firefox browser window with the address bar displaying a file path: `file:///E:/8000-8999/nasa/hardware/summary/mockups/views.htm`. The browser's toolbar includes various icons for navigation and search. The main content area is titled "Views" and displays a list of subprocesses. The page indicates there are 30 total entries, with the current view showing a subset of these. The subprocesses listed are ASTRO-E2, CHIPS, CINDI/TWINS, Constellation-X, ESDIS, EO-1, and EOS AURA. Each entry includes the name of the subprocess, the name of the person responsible, and a set of links for "Update", "Copy", and "Delete".

**Views**

Total 30 Entries  
Classification: **Product Realization Subprocesses** (T4-00-00-00)  
Subprocess: **Designing Hardware** (T4-08-00-00)

[Create View](#)

View	Steps
<a href="#">ASTRO-E2</a> Don Margolies (Don.Margolies@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">CHIPS</a> Dave Pierce (Dave.Pierce@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">CINDI/TWINS</a> Jim Byrd (Jim.Byrd@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">Constellation-X</a> Liz Citri (Liz.Citri@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">ESDIS</a> MaryAnn Esfandiari (MaryAnn.Esfandiari@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">EO-1</a> Bryant Cramer (Bryant.Cramer@nasa.gov)	<a href="#">Update</a> <a href="#">Copy</a> <a href="#">Delete</a>
<a href="#">EOS AURA</a>	<a href="#">Update</a>

Done Now: Mostly Sunny, 69° F Sat: 76° F Sun: 82° F Mon: 78° F Tue: 74° F Wed: 69° F

# Subprocess View Tools contain the envelope of related files.



Designing Hardware

## Table of Contents

- [Overview](#)
- [Play](#)
- [Documents](#)
- [Guidelines](#)
- [Others](#)

## 1. Overview

In this subprocess, we deal with the process of Building Hardware. This is where Projects design, build, and test their Hardware.

**Organization:** ORG

[All-Files](#). These are all the view files.

[Benefits](#)

## 2. Play

In this subprocess, the play is divided in several parts:

## Table of Contents

1. [Overview](#)
2. [Play](#)
3. [Documents](#)
4. [Guidelines](#)
5. [Others](#)

In this subprocess, we deal with the process of Building Hardware. This is where Projects design, build, and test their Hardware.

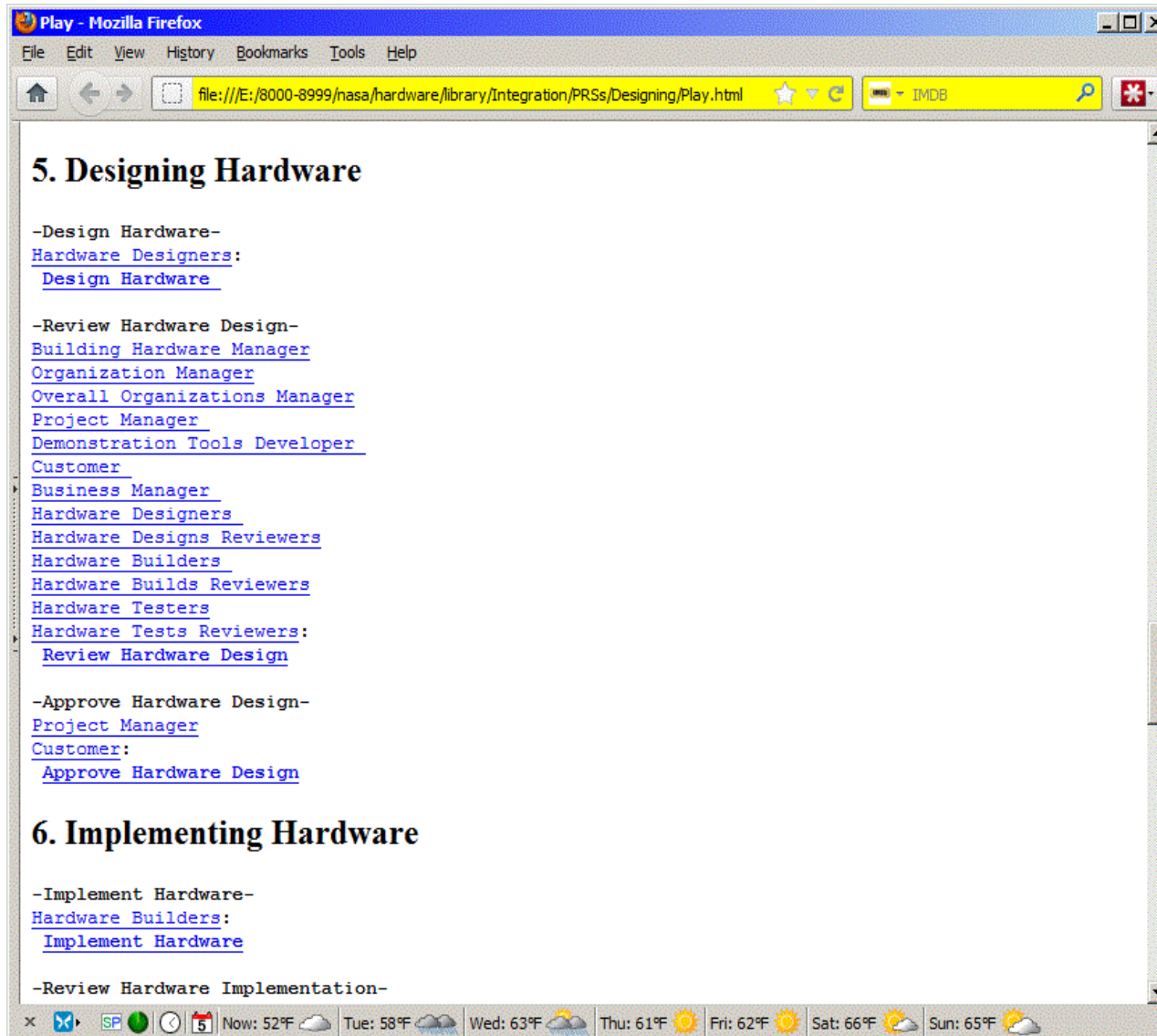
**Organization:** ORG

**All-Files.** These are all the view files.

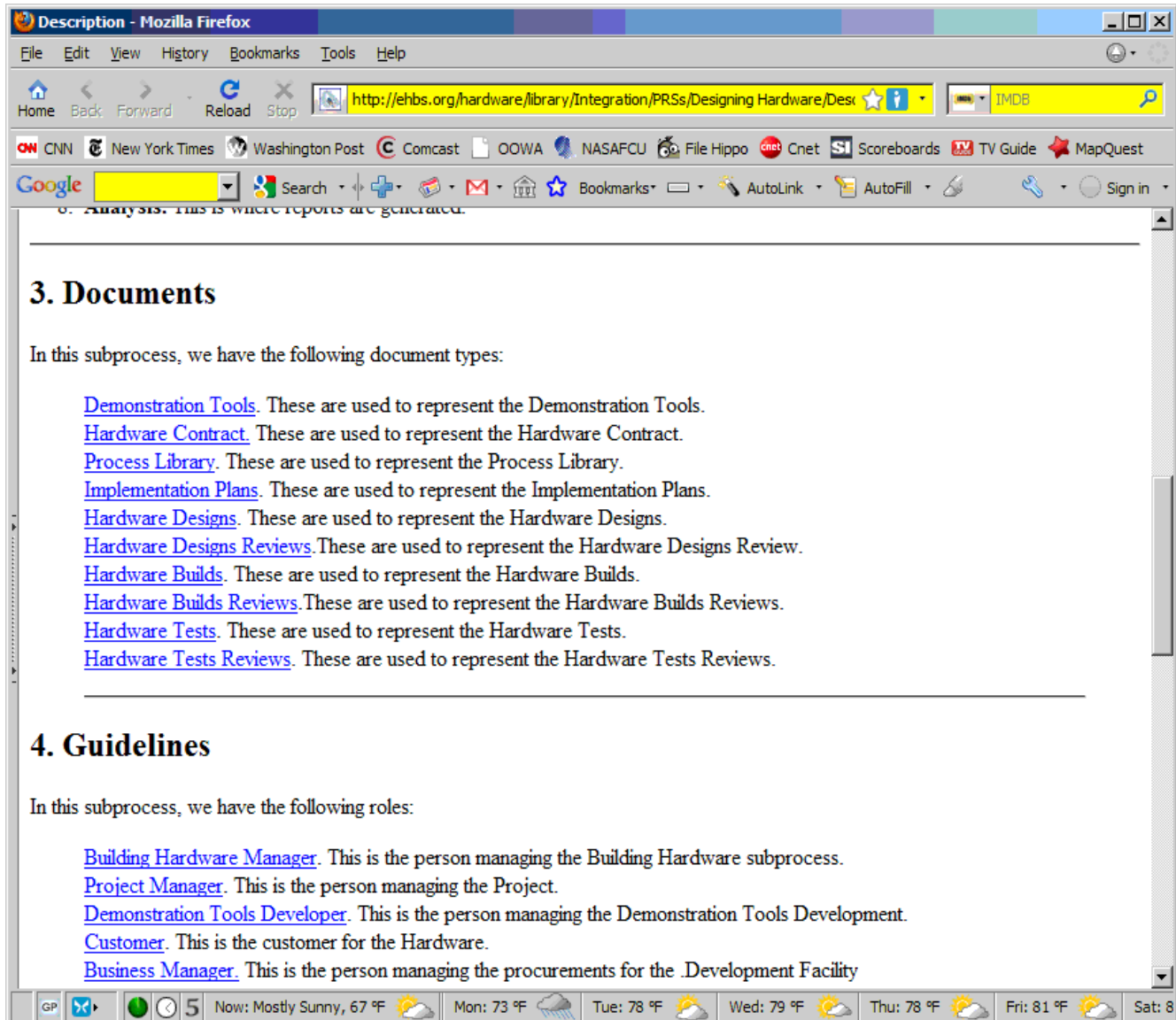
## Benefits

In this subprocess, the **play** is divided in several parts:

# Plays describe subprocess execution.



# Documents describe subprocess data.



**3. Documents**

In this subprocess, we have the following document types:

- [Demonstration Tools](#). These are used to represent the Demonstration Tools.
- [Hardware Contract](#). These are used to represent the Hardware Contract.
- [Process Library](#). These are used to represent the Process Library.
- [Implementation Plans](#). These are used to represent the Implementation Plans.
- [Hardware Designs](#). These are used to represent the Hardware Designs.
- [Hardware Designs Reviews](#). These are used to represent the Hardware Designs Review.
- [Hardware Builds](#). These are used to represent the Hardware Builds.
- [Hardware Builds Reviews](#). These are used to represent the Hardware Builds Reviews.
- [Hardware Tests](#). These are used to represent the Hardware Tests.
- [Hardware Tests Reviews](#). These are used to represent the Hardware Tests Reviews.

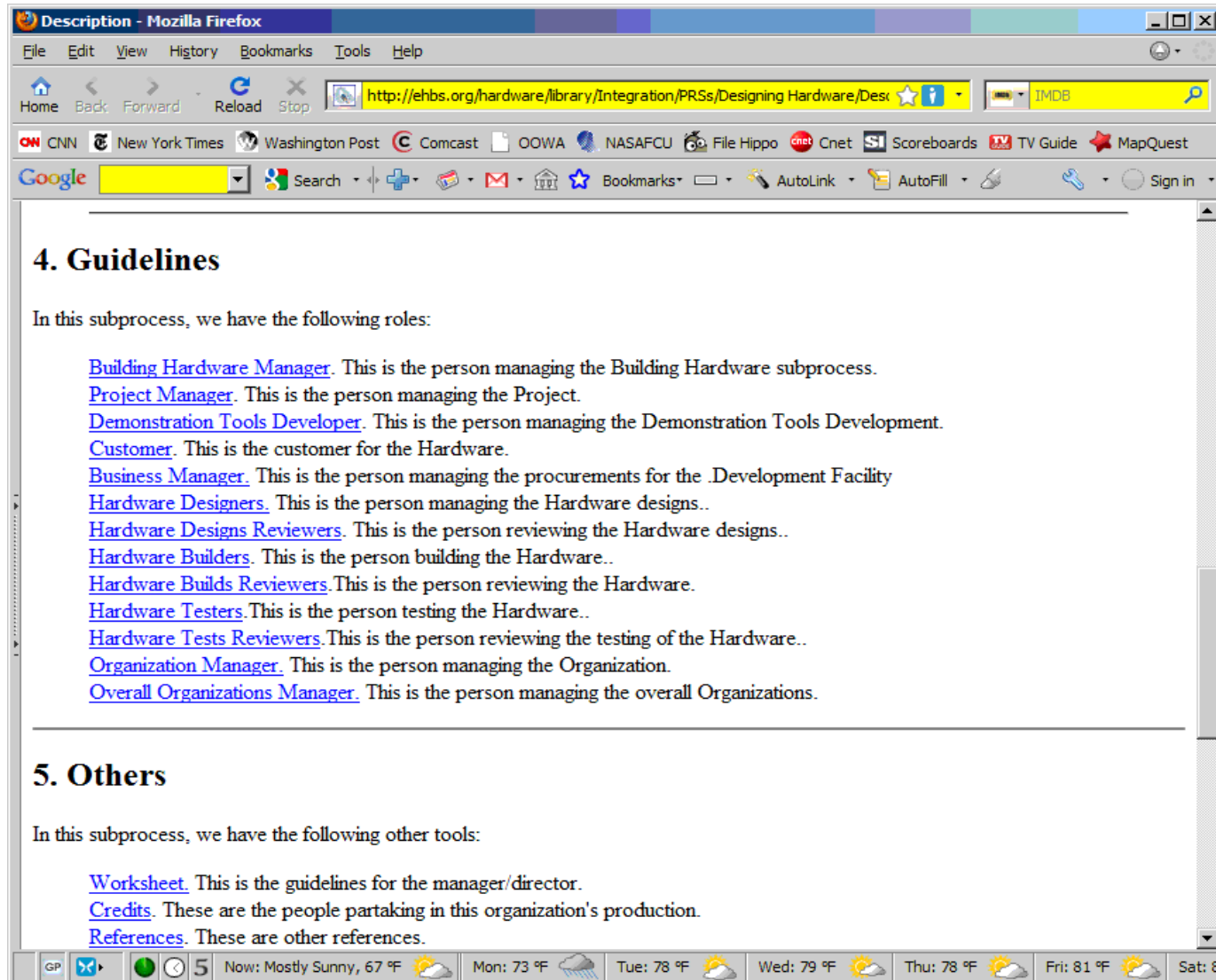
**4. Guidelines**

In this subprocess, we have the following roles:

- [Building Hardware Manager](#). This is the person managing the Building Hardware subprocess.
- [Project Manager](#). This is the person managing the Project.
- [Demonstration Tools Developer](#). This is the person managing the Demonstration Tools Development.
- [Customer](#). This is the customer for the Hardware.
- [Business Manager](#). This is the person managing the procurements for the .Development Facility



# Guidelines describe user subprocesses.



**4. Guidelines**

In this subprocess, we have the following roles:

- [Building Hardware Manager](#). This is the person managing the Building Hardware subprocess.
- [Project Manager](#). This is the person managing the Project.
- [Demonstration Tools Developer](#). This is the person managing the Demonstration Tools Development.
- [Customer](#). This is the customer for the Hardware.
- [Business Manager](#). This is the person managing the procurements for the .Development Facility
- [Hardware Designers](#). This is the person managing the Hardware designs..
- [Hardware Designs Reviewers](#). This is the person reviewing the Hardware designs..
- [Hardware Builders](#). This is the person building the Hardware..
- [Hardware Builds Reviewers](#). This is the person reviewing the Hardware..
- [Hardware Testers](#). This is the person testing the Hardware..
- [Hardware Tests Reviewers](#). This is the person reviewing the testing of the Hardware..
- [Organization Manager](#). This is the person managing the Organization.
- [Overall Organizations Manager](#). This is the person managing the overall Organizations.

**5. Others**

In this subprocess, we have the following other tools:

- [Worksheet](#). This is the guidelines for the manager/director.
- [Credits](#). These are the people partaking in this organization's production.
- [References](#). These are other references.

# Subprocess Worksheets facilitate subprocess manager communication with process developers and participants.

Worksheet - Mozilla Firefox

File Edit View History Bookmarks Tools Help

Home Back Forward Reload Print Stop file:///E:/8000-8999/nasa/hardware/summary/mockups/Worksheet.htm

## Subprocess Worksheet

**Subprocess:** Designing Hardware

**Purpose:** The purpose of this subprocess is to design Hardware.

**Organization:** IMAGE

Task	Purpose	Suggested Roles	Task Lead(s)	Estimated Completion Date	Actual Completion Date	Documents					
						Document	Instructions and Samples	Document Lead(s)	Estimated Completion Date	Actual Completion Date	Document Location(s)
Administration	The purpose of this task is to administer the design of Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official, Project Manager, Documents Manager	James Green	07/23/07	08/23/07	Document Library	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
Planning	The purpose of this task is to plan the design of Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official, Project Manager, Documents Manager	James Green	06/23/07	06/23/07	Planning Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Draft Project Requirements Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Project Plan	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
Designing Hardware	The purpose of this task is to design the Hardware.	Task Lead, Subtask Lead, Subtask Member, Reviewer, Approval Official	James Green	07/23/07	078/23/07	Design Document	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Project Plan	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034
						Review Forms	<a href="#">Instructions and Samples</a>	James Green	06/23/07	07/23/07	<a href="#">Library</a> : NS2034

Do... Now: Sunny, 75° F Tue: 87° F Wed: 85° F Thu: 85° F Fri: 85° F Sat: 87° F Sun: 84° F

# References list other related resources.



# Credits acknowledge people's contributions.



# Integration Tools facilitate subprocess integration.

Fetch Integration - Mozilla Firefox

File Edit View History Bookmarks Tools Help

file:///E:/8000-8999/nasa/hardware/summary/mockups[Integrations.htm] IMDB

CNN New York Times Washington Post Comcast File Hippo Summaries Process Libraries NASAFCU Scoreboards Bandwidth

Google Search

Fetch Integration

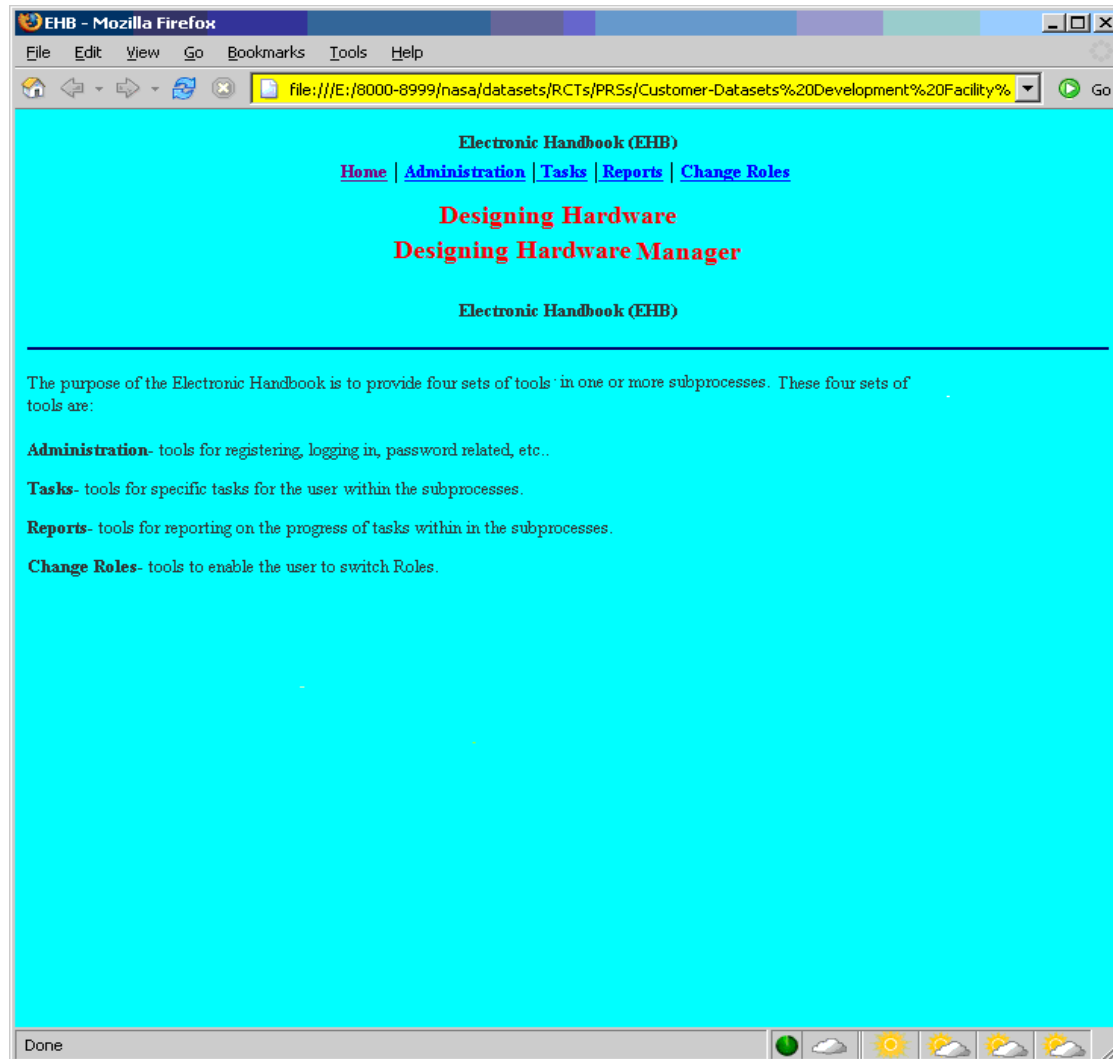
Read Integration	
Classification	Product Realization Subprocesses
Subprocess	Designing Hardware
Type	Guidelines
Title	Designing Hardware Manager
Id	T4-4-3-00
Integration Url	<a href="#">Fetch</a>
Ordinal	33
Date Created	03-MAY-2005
Date Updated	18-MAY-2005

Samples From Views	
<a href="#">ASTRO-E2</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">CHIPS</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">CINDI/TWINS</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">Constellation-X</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">ESDIS</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">EO-1</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">EOS AURA</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">ESMO</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">EXIST</a> <a href="#">Fetch</a> - (Size: 10 KB)	Date Created: 23-Jun-2005 Date Updated: 23-Jun-2005
<a href="#">CALFE</a>	Date Created: 23-Jun-2005

Done

Now: Mostly Sunny, 54° F Sat: 76° F Sun: 78° F Mon: 80° F Tue: 80° F Wed: 74° F

# Electronic Handbooks (EHBs) facilitate the execution of subprocesses.



# Demonstration Tools introduce the concepts to a community in their terms.



NASA Hardware - Mozilla Firefox

File Edit View History Bookmarks Tools Help

ehbs.org/hardware/

[National Aeronautics and Space Administration \(NASA\) - Hardware](#)


**Process Libraries (PLs) and Electronic Handbooks (EHBs)**  
**[Where Shakespeare Meets Freud]**

---

1. [What Are PLs and EHBs?](#)
2. [Summary](#)
3. [Some Applications](#)
4. [In The Press](#)
5. [Experiences](#)
6. [Some Demonstration Tools](#)
7. [Some Subprocesses and Their Documentations](#)
8. [Assembly Line Processes](#)
9. [Benefits](#)

[White Paper](#)  
[Book](#)



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If not authorized to access this system, disconnect now.

**YOU SHOULD HAVE NO EXPECTATION OF PRIVACY**  
By continuing, you consent to your keystrokes and data content being monitored.

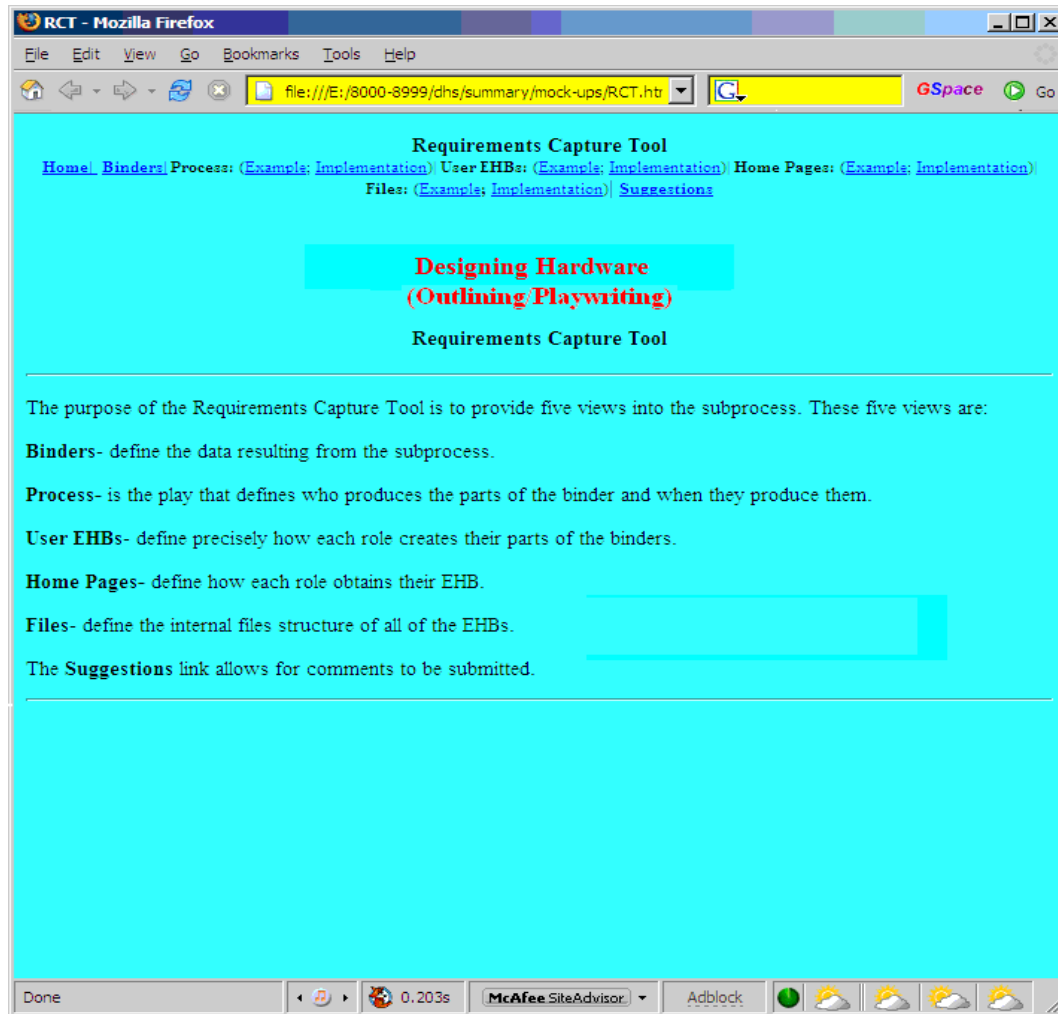
[NASA Privacy, Security Notices](#)

Last Modified: June 23, 2005  
Curator: [Dr. Barry E. Jacobs](#)  
NASA Official: [Dr. Barry E. Jacobs](#)

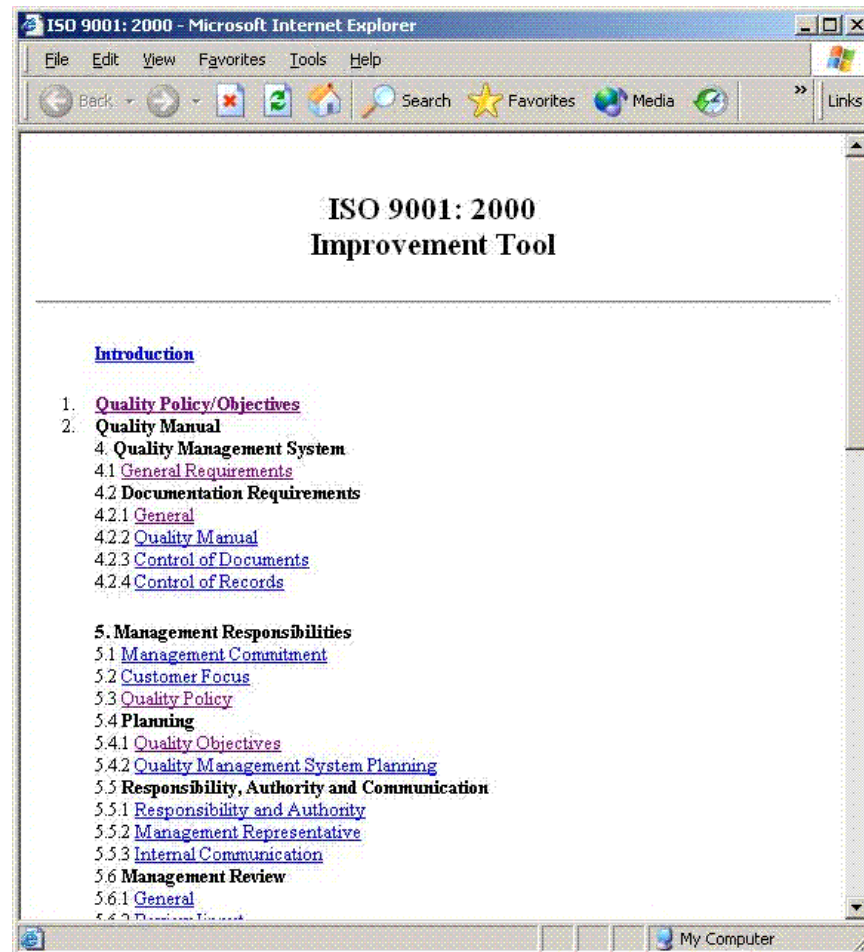
Now: 44°F Wed: 45°F Thu: 59°F Fri: 41°F Sat: 38°F Sun: 38°F Mon: 36°F



# Requirements Capture Tools (RCTs) facilitate subprocess development.

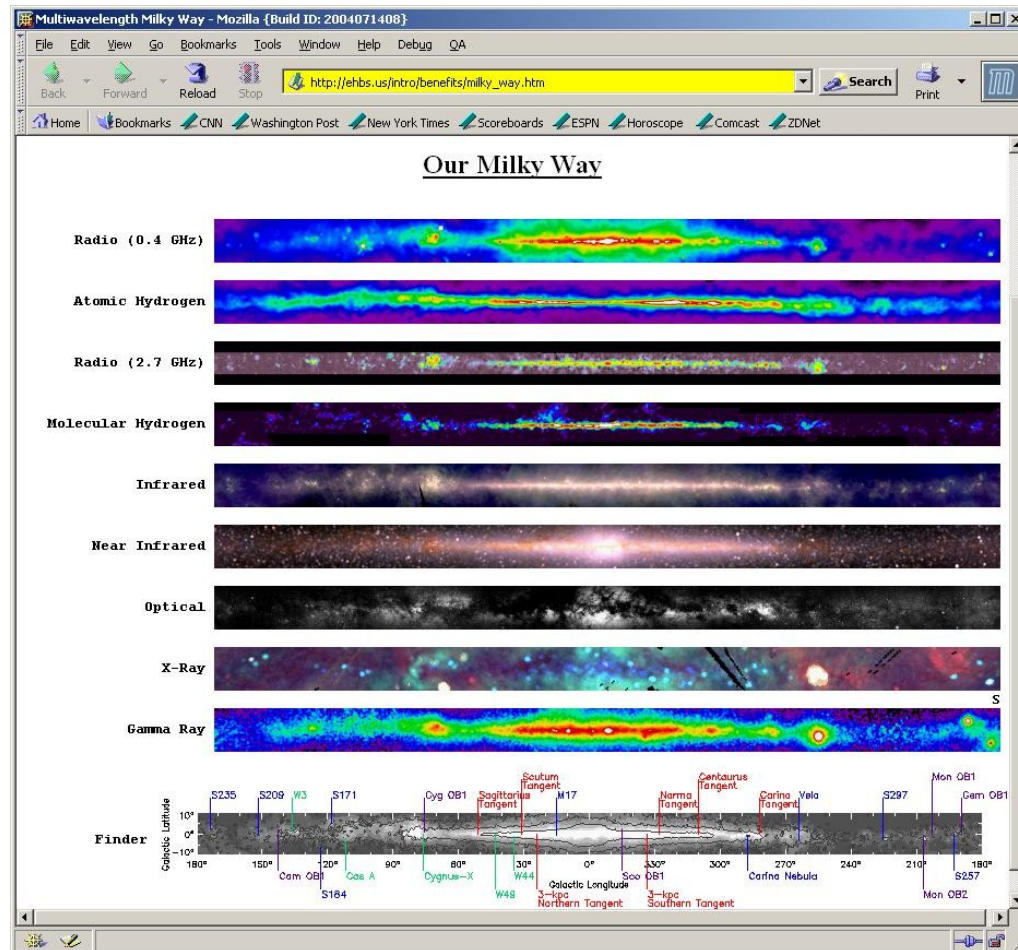


# Improvement Tools facilitate subprocess improvement.



# **Final Thoughts**

**We believe that to truly understand one's universe, one must see it thru multiple “eyes” and also have tools to “communicate” these views.**



# **All the world's a stage ...**

**Jaques:**

**All the world's a stage,  
And all the men and women merely players;  
They have their exits and their entrances,  
And one man in his time plays many parts,  
His acts being seven ages.**

**William Shakespeare**

**As You Like It, Act 2, Scene 7.**

# **Some Effects of Separation**

**"Men hate each other because they fear each other;  
They fear each other because they don't know each other;  
They don't know each other because they can't communicate with each other;  
They can't communicate with each other because they are separated from each other. "**

**Dr. Martin Luther King Jr.**

**September 3, 1957**



# Theatre of Dionysus- Athens, Greece





# For More Details



File Edit View History Bookmarks Tools Help

EHBs Home Page

ehbs.us

Search

**Complex Process Management Using PLs and EHBs [Where Shakespeare Meets Freud]**

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[4. In The Press](#)

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[7. Some Demonstration Tools](#)

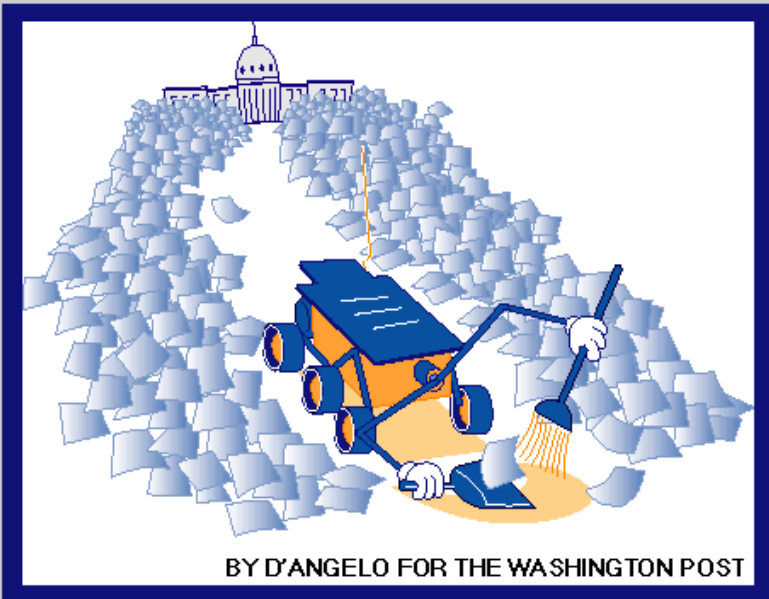
[8. Some Subprocesses and Their Documentations](#)

[9. Assembly Line Processes](#)

[10. Benefits](#)

[White Paper Book](#)

[How Can I Apply These To My Organization's Processes?](#)



BY D'ANGELO FOR THE WASHINGTON POST

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[\[Mini-Bio\]](#)

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