MSFC EEE PARTS OBSOLESCENCE MANAGEMENT PROGRAM

Overview

- **What is EEE Parts Obsolescence?**
  - Electrical, Electronic, and Electromechanical (EEE) parts obsolescence occurs when a part is no longer in production and has no approved sources of supply.
- **What challenges does NASA face?**
  - EEE parts are discontinued at a faster rate than NASA hardware is built.
  - Limited number of suppliers for space qualified parts.
  - Commercial sector dominates electronics market.
  - Technology advancements for space flight hardware limited by unavailability of next-generation, space qualified EEE parts.
- **Who is impacted by obsolescence?**
  - Everyone, regardless of mission type!

Overview

- Obsolescence issues may occur at anytime during a project life cycle.
  - Design
  - Development
  - Production
  - Sustainment
- Obsolescence may impact any project regardless of mission type or duration.

Examples of Obsolescence Impacts	Single Flight	Multi-Flight
Part availability for lag time between design and production.	X	X
Need for spares due part failures.	X	X
Reuse of designs for future projects (Heritage Hardware)	X	X
Availability of parts for multiple production units with similar configuration.		X

Mitigate Obsolescence Risk by Performing Proactive Obsolescence Analysis

MSFC Obsolescence Management Program

- **What is MSFC doing to mitigate obsolescence risk?**

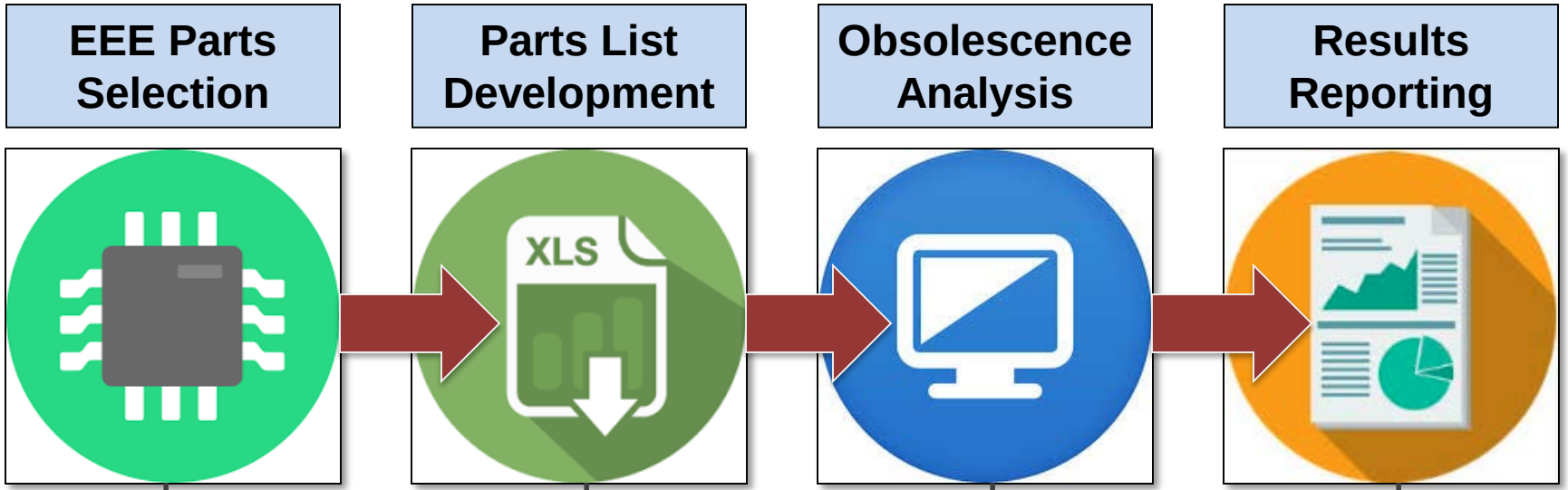
① Developed MSFC-STD-3620, EEE Parts Obsolescence Management and Control Requirements.

② Worked with NASA Headquarters (HQ) to incorporate obsolescence management requirement to the EEE Parts Policy 8730.2.

③ Developed the Electronic Parts Application Reporting and Tracking System (EPARTS) obsolescence module.

④ Expanded obsolescence management capability beyond MSFC and to other NASA centers.

Obsolescence Analysis



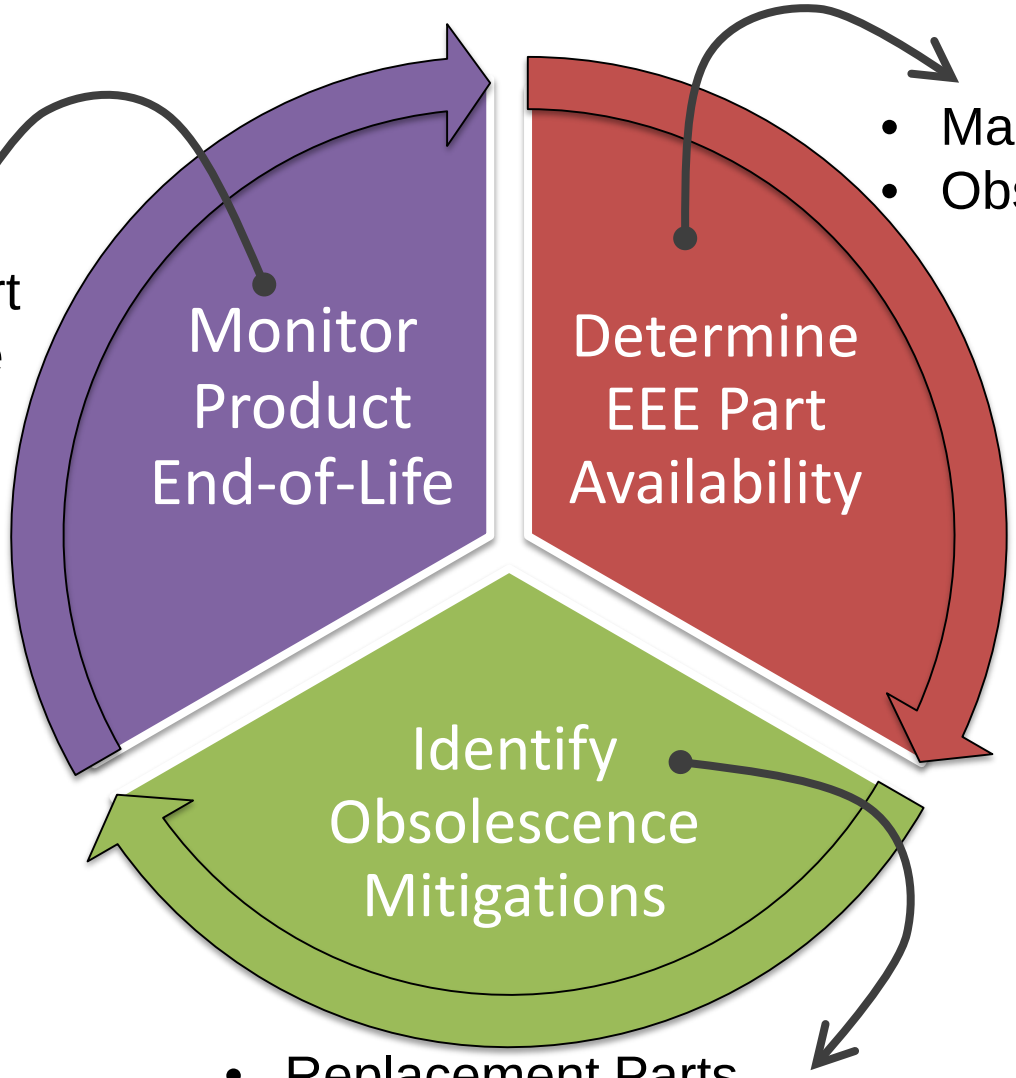
Coordinate with Design Engineers for part selection.

Ensure parts lists meet data requirements.

Perform analysis in accordance with MSFC-STD-3620.

Report results of analysis to impacted project.

Obsolescence Analysis



- Advanced part obsolescence notification

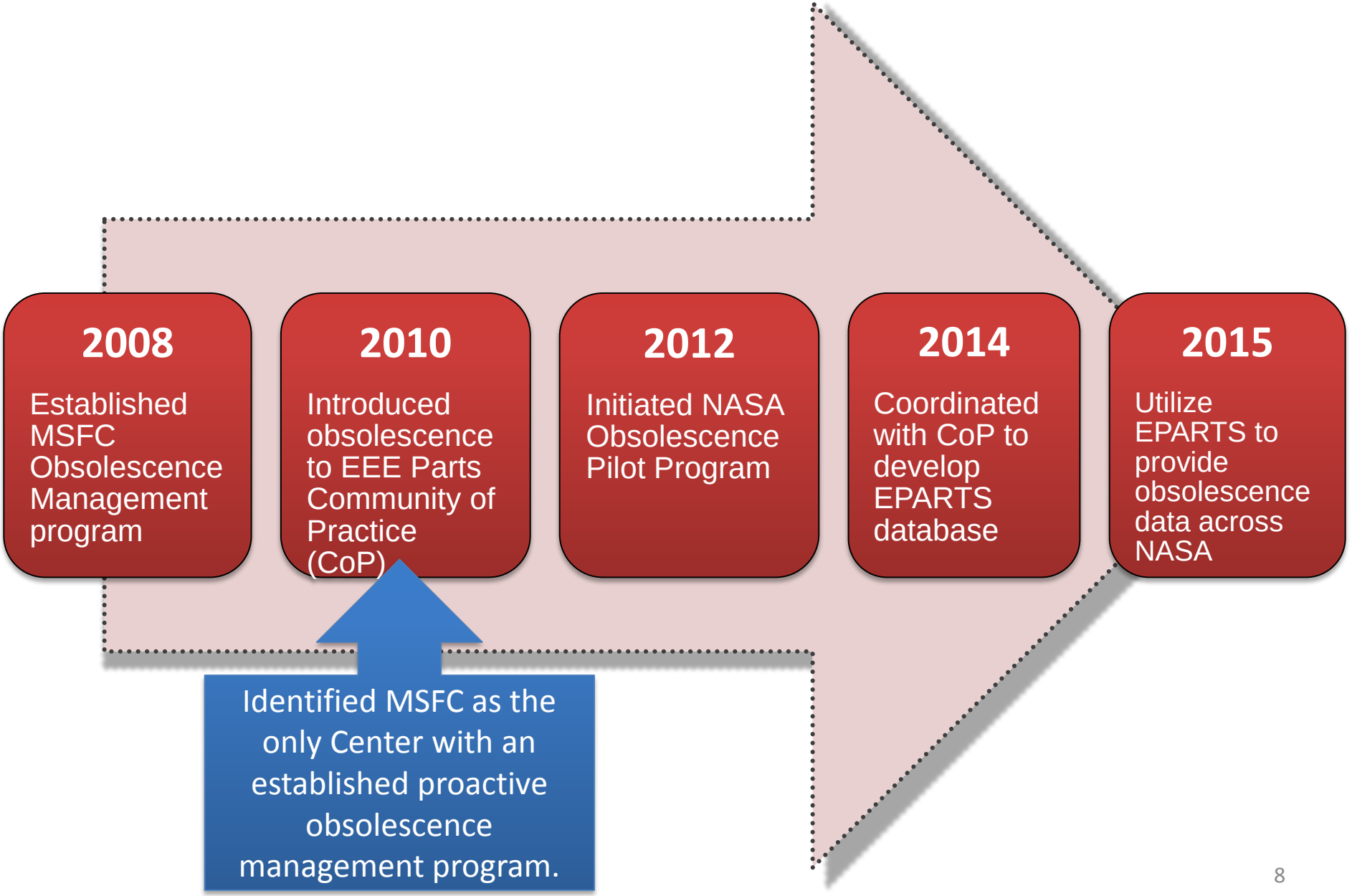
- Manufacturing Sources
- Obsolescence Date

- Replacement Parts
- Alternate Manufacturer
- Existing Inventory

Example of Output

EEE Part Number	Function	Total Manufacturing Sources	EEE Part Availability	Obsolescence Date	Manufacturer	Replacement Options
5962R9568301VCC	Quad 2-Input AND Gate	**Obsolete**	Obsolete	2007	Intersil	None Identified
5962F9671901VXC	Transistor	**Obsolete**	Obsolete	2007	Intersil	5962F8766303QXA
PPC440SP-ANC667C	PPC440SP Embedded Processor	**End-of-Life**	End-of-Life	04/11/2012	Applied Micro	None Identified
5962-8853401EA	Flip Flop	**Sole Source**	3-4 years	2015	QP Semi	
JANTXV1N6111AUS	Diode	**2 or More**	>18 years	2029	Microsemi, Semtech	

Timeline of Events



EPARTS

- NASA EEE Parts Database
  - Agency EEE parts library
  - Obsolescence management tool
  - EEE parts process tool
  - Mission Assurance mechanism

Obsolescence Module

- Enables MSFC to perform EEE parts obsolescence analysis function for the Agency.
  - Identified as the only NASA center with capability.
  - Coordinated with JPL to design and develop module.
- Streamlines obsolescence management process.
  - Reduces research and analysis time.
  - Promotes common mitigations across projects and centers.
- Encourages users to participate in EPARTS.
  - Provides automatic obsolescence analysis upon parts list import.
  - Ensures parts monitored on continuous basis for product discontinuance.

Obsolescence Module

- Each part loaded into EPARTS is assigned an obsolescence status.
- Fields are added to each EEE part to denote part availability:
  - Total manufacturing sources
  - Available manufacturers
  - Projected obsolescence date
  - Actual obsolescence date
  - Obsolete part replacement options
- Obsolescence risk color code is assigned to each part and appears on the project-specific dashboard.
- All parts monitored on a continuous basis for end-of-life notification.

Obsolescence Risk Legend	
Y	Obsolete, End-of-Life Date issued, Sole Source Manufactured with less than <4 years availability
N	Part availability >4 years, 2 or more manufacturing sources
N/A	Obsolescence risk not assigned due to part type (passive devices)
U	Obsolescence risk unknown

Benefits of EPARTS Obsolescence Module

- EPARTS has the potential to provide significant cost savings at both the Center and Agency levels.
  - **Streamlines NASA obsolescence management process.**
    - Reduces MSFC analysis time by export of consolidated parts lists.
    - Enables MSFC to provide advanced EEE part obsolescence notification.
      - Reduces the risk of costly obsolescence mitigations, such as redesign.
  - **Reduces engineering labor hours.**
    - Eliminates duplication of effort for EEE parts analysis activities.
    - Provides web-based access to existing NASA-approved parts.
  - **Promotes consolidation of NASA part procurements.**
    - Identifies common parts on NASA projects.
    - Facilitates shared EEE part inventories across Centers.
  - **Enables EEE part data sharing.**
    - Captures EEE part attribute data across Centers.