VISION

BE THE MODEL ACQUISITION PROGRAM FOR JOINT SERVICE AND INTERNATIONAL COOPERATION

DEVELOP AND PRODUCE AN AFFORDABLE NEXT GENERATION STRIKE FIGHTER WEAPON SYSTEM AND SUSTAIN IT WORLDWIDE
SERVICE NEEDS


• **USAF:** 1763 CTOL
  – Multi-role (primary air-to-ground) fighter to replace the F-16 and A-10 and to complement the F-22

• **DoN:** 680 CV/STOVL
  – USN - Multi-role, stealthy strike fighter to complement the F/A-18E/F
  – USMC - Multi-role, short takeoff, vertical landing strike fighter to replace the AV-8B and F/A-18C/D

• **UK (RN and RAF):** 150
  – Supersonic STOVL replacement for the Sea Harrier and GR-7

• **Requirements Document**
  – JORD Signed 13 March 00
    • JROC Validated 11 April 00
    • JROC Revalidated 18 October 01

2,593 US/UK JSFs
SERVICE & INTERNATIONAL NEEDS

- **USAF:** Multi-role (primary air-to-ground) fighter to replace F-16 & A-10 & to complement F/A-22
- **USMC:** Multi-role, short takeoff, vertical landing strike fighter to replace AV-8B & F/A-18C/D
- **USN:** Multi-role strike fighter to complement the F/A-18E/F
- **UK (RN and RAF):** Supersonic replacement for Sea Harrier and GR-7

2,593 US/UK JSFs > 2,000 International JSFs
# JSF SDD PROGRAM SCOPE

**Fast Paced, Highly Integrated Production Readiness Development Plan**
- Airplane Lines Freeze in Summer 2002
- First Flight in Fall 2005

**Development & Integration of System Software**
- Spiral Development Delivered in Three Block Upgrades

**22 Test Aircraft**
- 14 Flight Test Aircraft
- 8 Ground Test Aircraft

**Over 50 Suppliers Now Fully Involved**

**Develop Two Interchangeable Engine Versions**

**Concurrent With First Production Deliveries in 2008 (CTOL & STOV)**

**Extensive Engineering, Testing, Modeling & Simulation**

**Maturation, Validation & Demonstration of Autonomic Logistics Concept**
## System Development and Demonstration (SDD) Schedule

<table>
<thead>
<tr>
<th>CY01</th>
<th>02</th>
<th>03</th>
<th>04</th>
<th>05</th>
<th>06</th>
<th>07</th>
<th>08</th>
<th>09</th>
<th>10</th>
<th>11</th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY01</td>
<td>02</td>
<td>03</td>
<td>04</td>
<td>05</td>
<td>06</td>
<td>07</td>
<td>08</td>
<td>09</td>
<td>10</td>
<td>11</td>
<td>12</td>
</tr>
</tbody>
</table>

- **SDD Start**
  - CTOL/CV
  - STOVL

- **Preliminary Design Review**
  - Mar 03

- **Critical Design Reviews**
  - CTOL
  - STOVL
  - CV

- **First Flight**
  - CTOL
  - STOVL
  - CV

- **Initial Operational Capability**
  - Ready for Training
  - First Operational Jet Delivered

### Block 1 Capability Development & Flight Test
- Basic warfighter capability
- Flight qualified
- Interdiction, initial air-to-air
- JDAM/AIM-120

### Block 2 Capability Development & Flight Test
- Interdiction, enhanced air-to-air
- Close air support & destruction of enemy air defenses
- Additional bombs qualified

### Block 3 Capability Development & Flight Test
- Threshold compliant JSF w/ key weapons
- All JSF missions
- Additional missiles/bombs qualified

**Low Rate Initial Production Start**
## Key Performance Parameters

<table>
<thead>
<tr>
<th>KPP</th>
<th>USMC</th>
<th>USAF</th>
<th>USN</th>
<th>UK</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio Frequency Signature</td>
<td>Very Low Observable</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Combat Radius</td>
<td>450 nm USMC Profile</td>
<td>590 nm USAF Profile</td>
<td>600 nm USN Profile</td>
<td>450 nm UK Profile</td>
</tr>
<tr>
<td>Sortie Generation</td>
<td>4 Surg / 3 Sust</td>
<td>3 Surg / 2 Sust</td>
<td>3 Surg / 2 Sust</td>
<td>3 Surg / 2 Sust</td>
</tr>
<tr>
<td>Logistics Footprint</td>
<td>&lt; 8 C-17 equivalent loads (20 PAA)</td>
<td>&lt; 8 C-17 equivalent loads (24 PAA)</td>
<td>&lt; 46,000 cu ft 243 ST</td>
<td>&lt; 21,000 cu ft 102 ST</td>
</tr>
<tr>
<td>Mission Reliability</td>
<td>95%</td>
<td>93%</td>
<td>95%</td>
<td>95%</td>
</tr>
<tr>
<td>Interoperability</td>
<td>Meet 100% of critical, top-level Information Exchange Requirements</td>
<td>Secure Voice and Data</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STOVL Mission Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short Take-Off Distance</td>
<td>550’</td>
<td>N/A</td>
<td>N/A</td>
<td>450’ ski-jump</td>
</tr>
<tr>
<td>Vertical Lift Bring Back</td>
<td>2 x 1K JDAM, 2 x AIM-120 With Reserve Fuel</td>
<td></td>
<td></td>
<td>2 x 1K JDAM, 2 x AIM-120 With Reserve Fuel</td>
</tr>
<tr>
<td>Maximum Approach Speed</td>
<td>N/A</td>
<td>N/A</td>
<td>145 knots</td>
<td>N/A</td>
</tr>
</tbody>
</table>
JSF FAMILY OF AIRCRAFT

Carrier Variant (CV) F-35C

Conventional Take-Off and Landing (CTOL) F-35A

Short Take-Off Vertical Landing (STOVL) F-35B
ENGINE INTERCHANGEABILITY

- Physically and Functionally Interchangeable
- Any Aircraft Able to Use Any Engine
- Common JSF Autonomic Logistics System Interfaces

PRATT & WHITNEY F135

GE AIRCRAFT ENGINES/ROLLS ROYCE F136

JSF Engines - - Common Core for Aircraft Variants, Competition in Production
AUTONOMIC LOGISTICS SYSTEM
TECHNICAL SOLUTION

INTEGRATED SUPPORT
- Design Data → Direct to → Support Information
- Failure Prediction → Remove Unit Before Failure

TECHNOLOGICALLY-ENABLED MAINTAINER

INTELLIGENT AIR VEHICLE
- Prognostics & Health Management
- Design for Supportability
- High Reliability & Maintainability

INTEGRATED TRAINING
- Common, Joint Pilot/Maintainer Training
- Modular, Flexible Training
- Embedded Training

FLIGHT OPERATIONS
- Integration for Optimal Mission Performance
- High Sortie Generation Rate
- Low Logistics Footprint

Joint Aircrew & Maintainer Training

Integrated JSF AL System - Affordable, Supportable, Survivahle, & Lethal
INTERNATIONAL COOPERATIVE AGREEMENTS

Level I – UK Memorandum of Understanding (MOU) Signed 17 Jan 2001

Level II – Italy MOU Signed 24 Jun 2002
Netherlands MOU Signed 10 Jun 2002

Level III – Turkey MOU Signed 11 Jul 2002
Canada MOU Signed 7 Feb 2002
Australia MOU Signed 31 Oct 2002
Denmark MOU Signed 28 May 2002
Norway MOU Signed 20 Jun 2002
JSF ORGANIZATION

SECRETARY

PEO
Maj Gen John Hudson, USAF

DPEO
RDML Steve Enewold, USN

TD
Mr. John McKeown

EA

SYS ENG

AUTO LOG

AIR VEHICLE

PROPULSION

ITF

AS SEIT
Ops Rqmts Analysis
Sys Eng Rqmt Int
Affordability
Int'l Proj
Program Planning
Test & Verification
C4I Interoperability

Analysis & Integ
Log Infrastructure
Tng & Manpower
Info Systems

Analysis & Integ
Ship Suitability
Airframe
Vehicle Systems
Mission Systems
Weapons Integ

Analysis & Integ
JSF-135 Pgm
JSF-136 Pgm
AcqTeam

SITE DIRECTORS

BFM
SECURITY
CONTRACTS
OPERATIONS
INTERNATIONAL
LEGAL
PUBLIC AFFAIRS
SUPPLEMENTAL MANAGEMENT STRUCTURE
JSF INTERNATIONAL STRATEGY / COOPERATIVE FRAMEWORK

Enablers

MOU & LOA

Gov’t to Gov’t

Industry to Industry

Agreements & Licenses

Multinational Cooperative Development Program

Enhances Future Interoperability & Coalition Warfare

Flags of participating countries: Norway, Sweden, UK, Australia, Canada, Turkey, Spain, Italy, USA
## ROAD AHEAD

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acq Strategy Update</td>
<td>Fall 03</td>
</tr>
<tr>
<td>CEO Conference</td>
<td>12-13 Nov 03</td>
</tr>
<tr>
<td>Next SWG/CSB/SAE</td>
<td>Jan 04</td>
</tr>
<tr>
<td>CDR-1</td>
<td>Apr 04</td>
</tr>
<tr>
<td>F135 STOVL FETT</td>
<td>May 04</td>
</tr>
<tr>
<td>F136 CTOL FETT</td>
<td>Aug 04</td>
</tr>
<tr>
<td>First SDD Flight (CTOL)</td>
<td>Fall 05</td>
</tr>
</tbody>
</table>
SUMMARY

- Transformational weapon system maturing
- True international partnerships forming
- Global Project Authorization being used
- Innovative, integrated management concepts working
- Propulsion CDRs complete
- Air system PDR complete
- CDR & first flight target dates are on track, but the sprint will continue
- Affordability-based decision processes
- Every wicket, every day!
- Performance…teamwork…process discipline

JSF is Redefining the Way We Do Business
WORKING TO AFFORDABLY MEET THE REQUIREMENTS OF THE WARFIGHTER