	Exhibit R-2, RDT&E	Budget Ite	m Justificat	ion Date	e: February 2	2006		
Appropriation/Budget Activity		R-1 Item Nomenclature:						
RDT&E Defense-Wide, BA 6				Support to Networks and Information Integration PE 0605170D8Z				
Cost (\$ in millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	
Total PE Cost	36.185	16.539	10.990	11.524	11.550	11.874	12.064	
Command Information Superiority Architecture	5.668	6.214	5.497	5.756	5.751	5.895	6.027	
Defense Architecture Repository	1.049	1.190	1.249	1.307	1.308	1.340	1.370	
Integrated Planning and Management	1.807	1.935	2.034	2.131	2.128	2.180	2.231	
Support to NII Mission Requirements	27.661	7.200	2.210	2.330	2.363	2.459	2.436	

A. Mission Description and Budget Item Justification:

This program element supports studies in the areas of networks, information integration, defense-wide command and control (C2), and communications. This program is funded under Budget Activity 6, RDT&E Management Support because it includes studies and analysis in support of RDT&E efforts.

Program Accomplishments and Plans:

FY 2005 Accomplishments: (\$36.185 million)

- Pursued research on new approaches to command and control suitable for 21st Century operations.
- Continued to fund the Edge Institute at the Navy Post Graduate School (NPS) and expand this virtual institute to other universities.
- Began research on implications of coalition and civil-military operations for command and control, military operations, and organizations.
- Continued development of metrics and conceptual framework suitable for assessing network-centric operations.
- Continued to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
- Conducted 10th International Command and Control Research and Technology Symposia.
- Conducted workshops to explore command and control related issues.
- Continued C2 publications and outreach program.

- Completed a study of advanced shipboard Acoustical Communications.
- Conducted research to improve voice and speech clarity in noisy environments, specifically, target the chaotic climate found within a Combat Operations Center (COC) and Unit Operations Centers (UOC) with operators wearing headsets for voice communications.
- Studied the potential capability to augment existing and planned IED detection devices with new technology that would improve the operators' ability to detect, analyze, identify, and localize IED devices more quickly and efficiently.
- Investigated, researched, and analyzed the high impulse noise operating environment existing on aircraft carrier (CV/N) flight decks. Document the factors which impede effective transmitted human speech communications which contribute to unsafe flight deck operations and define those critical elements for which Perfect Wave Independent Component Analysis (ICA) technology would benefit.
- Developed an improved flight deck communications system which incorporates the Independent Component Analysis (ICA) technology in order to mitigate ambient and machinery induced environmental noises introduced into human speech processing communications systems. Test, evaluate, demonstrate and validate the effectiveness of ICA in improved operation of flight deck voice communication systems.

Pacific Disaster Center

- The tragic events of the Great Sumatra Earthquake and Indian Ocean Tsunami of December 26, 2004 in Southeast Asia and the Indian Ocean basin demonstrated how valuable PDC is to the region because it: (a) is the only all-hazards (natural, technological, and human-induced) disaster center in the region; (b) is concerned with all levels of disaster management—from first responders to senior policy makers; and (c) provides assistance through all phases of comprehensive disaster management—preparedness, mitigation, response, and recovery. To effectively deliver the needed support to emergency managers, the PDC's activities (central to achieving its core mission and supporting its diverse stakeholders) focused on the innovative use of science, information, technology, and applied research to:
 - Promote proactive, rather than reactive, planning that includes hazard mitigation as a key element of sustainable development;
 - o Foster partnerships to raise awareness among widespread segments of the disaster management and regional planning communities; and
 - o Increase efficiency of operational organizations by introducing innovative and appropriately scaled information resources, tools, and analyses.

- The PDC expanded the capabilities and development of an integrated distributed information network in the Asian-Pacific Region. The Asia Pacific Natural Hazards Information Network (APNHIN), which was established by PDC, directly supports disaster and resource managers, planners, governments, and nongovernmental organizations with a suite of applications and information services designed to search for, evaluate, and access high-quality geospatial data for natural hazard applications within the Asia Pacific region. The introduction of the network received wide praise from data providers and users alike. APNHIN comprises a rapidly growing community of organizations who create and share disaster and hazards-related information.
- The PDC, in cooperation with the Association of Southeast Asian Nations (ASEAN) Committee on Disaster management (ACDM), (which is comprised of National Disaster Management Organizations (NDMOs) for 10 Southeast Asian Nations) defined and initiated a program of 4 tasks that would result in the development of a regional Disaster Information Sharing and Communication Network (DISCNet) to:
 - o promote and facilitate collaboration and information sharing;
 - o strengthen national disaster management capacities;
 - o provide a framework for regional integrated decision support promoting enhanced disaster readiness and mitigation, and,
 - o produce an assessment of ICT capabilities in each of the 10 ASEAN member countries.
- To promote safe and sustainable communities in the Asia Pacific region, PDC established a cost-sharing partnership with the Earthquakes and Megacities Initiative (EMI) to apply PDC research and methodology development in the Risk and Vulnerability program area to the world's most complex urban environments that are subject to major earthquakes. The focus of the program is to facilitate earthquake disaster preparedness and mitigation by promoting the integration of disaster risk management and risk reduction, in selected Asian megacities.
- PDC continued to work with the State of Hawaii, as part of the Hawaii Industry Partnership, and acts as an incubator for emerging, high technology firms in Hawaii.
- PDC supported the Commander, US Pacific Command in exercises and information products for training and decision-making.

FY 2006 Plans: (\$16.539 million)

- Pursue research on new approaches to command and control suitable for 21st Century operations.
- Continue support for the Edge Institute at the NPS and expand this virtual institute to other universities.
- Continue research on implications of coalition and civil-military operations for command and control, military operations and organizations.
- Assess metrics and conceptual framework suitable for assessing network-centric operations.
- Continue to work with the DoD community and international partners to improve the understanding of Information Age command and control related issues.
- Continue C2 publications and outreach programs.

Pacific Disaster Center

- The Indian Ocean Tsunami and Hurricane Katrina, coupled with ever-increasing "at risk" coastal populations and infrastructure, demonstrates the need for improved Risk and Vulnerability Assessments for coastal zones. To address these increasing needs, and to develop decision tools for emergency managers in the region, the PDC will focus on improving its overall capacity to simulate and assess the potential impacts of various forms of flooding and inundation associated with hazards such as hurricanes, tsunamis, storm surge, dam breaks and river and urban flooding.
- The PDC will actively seek to expand its partnership with NOAA to capitalize on combined existing capabilities and synergies.
- Continue to expand the PDC presence in the Asia-Pacific Region capitalizing on the existing efforts being undertaken by the East-West Center, US State Department and other international entities concerned with the rising cost, both in human lives and property, of natural and man-made disasters.
- Continue to support the US Military Commands, DOD Homeland Defense, State and Federal Agencies, and regional
 organizations with unique products critical to decision-makers in managing risks posed by, and emergencies caused by,
 nature and/or mankind. Work more closely with other stakeholders, including planners, to plan for and mitigate the effects
 of these events and make communities more resilient.

FY 2007 Plans: (\$10.990 million)

- Continue research on new approaches to command and control suitable for 21st Century operations.
- Continue research on implications of coalition and civil-military operations for command and control, military operations,

and organizations.

- Assess metrics and conceptual framework suitable for assessing network-centric operations.
- Continue to work with the DoD community and international partners to improve the understanding of Information Age command and control related concepts, technologies, and experiments.
- Conduct symposia and workshops to explore command and control related issues.
- Expand the C2 publications and outreach programs.
- B. **Program Change Summary:** (Show total funding, schedule, and technical changes for the program element that have occurred since the previous President's Budget Submission)

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>
Previous President's Budget	37.304	10.706	10.819
Current President's Budget	36.185	16.539	10.990
Total Adjustments	-1.119	5.833	.171
Congressional program reductions			
Congressional rescissions, Inflation Adjustments	-1.119	267	.171
Congressional increases		6.100	
Reprogrammings			
Transfer			

Program Change Summary:

FY 2005: SBIR -.954 million; STTR -.115 million; Atomic Energy -.029 million; WHS reduction -.021 million.

FY 2006: Congressional Increases 6.100 million; FFRDC -.027 million; Economic Assumptions -.073 million; rescission -.167

million.

FY 2007: Non-pay purchase inflation 171 million.

- C. Other Program Funding Summary: N/A
- D. Acquisition Strategy. N/A
- E. Performance Metrics:

- Community participation in command and control research program (CCRP) events.
- Number of requests for CCRP publications.
- Number of international countries engaged in net centric discussions and collaborative efforts.
- Successfully sponsored symposia/workshops to discuss command and control research initiatives.

CISA Performance is based on the number of initiatives that transition to the net-centric environment to support operations. Measures include:

• Requirements: Business products identified in need of change

Business products impacted or changed due to architecture analysis or products

• Acquisitions: Number of system(s) or system functions identified as duplicate

Number an/or type of system identified as necessary to complete capability

Number of system(s) and/or applications impacted by architecture analysis

• Portfolio Management:

Number of systems included in portfolio

Cost estimates provided for portfolio

Number of duplicate systems identified in portfolio analysis

Funds obtained as a result of portfolio analysis

DARS Performance Metrics:

- Getting key service program managers to use DARS to store and retrieve architecture data to include Future Combat System (FCS), Command and Control Constellation (C2C), FORCENET.
- Obtaining Intelligence Community Agencies such as National Security Agency (NSA), Defense Intelligence Agency (DIA), National Geospatial Agency (NGA) architects and program managers to store and retrieve architecture data from DARS
- Participation from leading COTS enterprise architecture vendors to use and maintain currency with CADM XML with their version releases
- Acceptance of CADM XML as the basis for an international data exchange standard

C2 Integrated Planning & Management Performance Metrics:

- Successfully develop, coordinate, and publish DOD C2 policies and operational concepts.
- Establishment of an information integration and decision portfolio of C2 services and applications to demonstrate selected capabilities.
- Development of Dynamic Operational Communities of Interest services based on the capabilities provided by the NCES

Program.

• Establishment of an ontological framework and XML data model to permit the meta-tagging of information integration decision portfolio data at the strategic and national C2 level in a manner consistent with other DoD data strategies and modeling efforts.

E	Date:	February 20	006				
Appropriation/Budget Activity RDT&E, Defense-Wide, BA 6 Project Name and Number: Command Information Superiority Architectures (CISA)/PE 0605170D8Z							
Cost (\$ in millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Name: Command Information Superiority Architectures	5.668	6.214	5.497	5.756	5.751	5.895	6.027
							L

A. Mission Description and Budget Item Justification:

The CISA program continues to be a leader in the transformation of the Department of Defense (DoD). Using a common architecture planning process, CISA products have provided decision makers at all levels of the department with the knowledge and tools to make intelligent, cost effective decisions on key transformational elements and policies, to include Net-Centric Operations and Warfare (NCOW), and the Global War on Terrorism (GWOT). CISA is the prime catalyst for transforming the COCOMs to a net-centric environment. The program is focusing on architecture deliverables that focus on Net-Centric Transition Plans for the COCOMs and integrating Portfolio Management into the COCOMs information technology and capital planning processes. The CISA architecture products results will be used to determine the future DoD CIO IT issues and investment strategies for the COCOMs. In addition, the results will provide direct inputs into the COCOM Integrated Priorities Listings (IPLs), and provide rationale for Program Objective Memorandum (POM) decisions by identifying critical capability shortfalls. The CISA information technology (IT) architectures products; the tactics, techniques, and procedures (TTPs) documents; and the architecture reference models have earned an enviable reputation throughout DoD as the "ground truth". Several have resulted in directly impacting critical shifts in DoD policies which include the new capabilities process for Capital Planning and Investment under the Joint Staff Instruction 3170.01; the Unified Command Plan 2 (directs the standup of USNORTHCOM and the re-structuring of USSTRATCOM); expansion of the GWOT focusing on USSOCOM as the lead developer of a global two-tier net-centric approach; coalition interoperability through the use of USCENTCOM Combined Enterprise Regional Information Exchange System (CENTRIXS) world-wide architecture which links 60 nations in a unified effort; and lastly, Net-Centric Operations and Warfare (NCOW) through the Global Information Grid (GIG) architecture and the NCOW Reference Model (RM). CISA is a leader in supporting the DoD CIO focus on initiatives defined in the Information Technology Management Reform Act (ITMRA), (Clinger-Cohen Act) in the development of the GIG, the Department wide IT architecture. The GIG is considered the essential enabler of Information Superiority and Net-Centricity requirement expressed in the Department's Joint Vision 2020. The inputs include GIG Architecture V1.0 - the DoD baseline "as is" architecture; and GIG 2.0 approved by the DoD CIO on 9 Dec 2003 as the objective architecture for 20XX embedding NCOW transformational concepts. The NCOW RM represents the key compliance mechanism for evaluating IT-related capability, and mapping DoD acquisition programs to implement NCOW.

5.660		
5.668	6.214	5.497
	3.000	3.000

FY 2005 Accomplishments: (\$5.668 million)

- Continued to development of GIG NCOW Reference Models to include information assurance and data management strategies
- Continued to develop Net-Centric assessment checklists for DoD Program Managers
- Continued the net-centric implementation of GIG architecture.
- Continued the development of executable COCOM architectures impacting operations, budget and transitions
- Developed the COCOM Net-Centric Transition Plans and processes
- Linked COCOM Net-Centric Transition Plans with key initiatives such as GIG Bandwidth Expansion (BE), Joint Tactical Radio System (JTRS), Net-Centric Enterprise Services (NES), Information Assurance (IA)
- Continued to expand and integrate COCOM Net-Centric transition assessment criteria
- Continued to develop and implement Portfolio Management criteria based on architecture data
- Continued to develop POM assessment criteria for information technology based on architecture data
- Investigated new ways of integrating COCOM architecture data with Portfolio Management for POM inputs, and Integrated Priority Listings (IPLs)
- Provided COCOM Net-Centric Assistance to integrate DoD programs within COCOM enterprise environment and link to COCOM inputs with DoD Enterprise Architecture Reference Models (DODEA RM) for OMB form 300 preparation.

FY 2006 Plans: (\$6.214 million)

- Investigate and expand COCOM Net-Centric Transition plans
- Expand the integration of COCOM Portfolio Management and Net-Centric Transition plans
- Continue expansion of Net-Centric compliance assessments of DoD Acquisitions
- Expand and refine COCOM Net-Centric transition assessments
- Fully integrate COCOM Net-Centric transition plans and assessments into IT capital planning and acquisitions for COCOMs and OMB form 300 preparation

FY 2007 Plans: (\$5.497 million)

- Implement second round of COCOM Net-Centric transition plans and assessments integrated with other DoD Program Net Centric assessments to ensure smooth "plug and play" capabilities
- Develop and provide integrated set of COCOM Net-Centric assessment capabilities for implementing transition plans
- Expand Implementation executable architecture capabilities within COCOM architectures and assessments of alternatives (AOA)
- Expand interactive use of architecture data for dynamic assembly of COCOM architectures to meet mission demands and changes for Unified Command Plans (UCPs)
- Continue expansion and integration with COCOM IT Capital Planning and Investments, and acquisitions

C. Other Program Funding Summary:

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	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	Cost
O&M, DW (PE0902198D8Z)	5.769	4.770	4,462	4.434	4.952	4.939	4.663	33.989

- D. Acquisition Strategy: N/A
- F. Major Performers: USCENTCOM, USJFCOM, USEUCOM, USSOCOM, USSTRATCOM, USTRANSCOM, USNORTHCOM, USSOUTHCOM, USPACOM, USFK, US ARMY Architecture Integration Cell/G6.

						February 2006	
Appropriation/Budget Activity Project Name and Number						se Architecture	Repository
RDT&E, Defense-Wide, BA 6	System (DARS)/PI				605170D8Z		
Cost (\$ in millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Name: DARS	1.049	1.190	1.249	1.307	1.308	1.340	1.370

B. Mission Description and Budget Item Justification:

DARS is the enterprise wide repository to store, retrieve, and use DoD architecture data. DARS provides two different types of architecture data- unstructured and structured along with key reference data. The architecture data is available to all DoD users once they have registered. Currently versions exist on both the NIPRNET (unclassified) and SIPRNET (Collateral Classified). Plans are also underway to implement DARS on the Joint World Wide Intelligence Communications System (JWICS). Key features of the DARS program focus on: (1) reuse of common validated architecture data to build integrated architectures; (2) conducting architecture analysis; and, (3) integration architecture data into the DoD mainstream decision-making processes. The DARS data structure is based on the Core Architecture Data Model (CADM), and its data structure is fully CADM compliant. This data structure is under full configuration management, and has the goal of transporting architecture data between and among diverse enterprise architecture and other tools (tool agnostic capability), allowing collaboration among users. By using a standard universal applications process interface (API) CADM XML, DARS works with multiple tool vendors to achieve the collaborative tool agnostic environment. The FY 2005 DARS program will follow the results of the FY 2004 pilot effort to prove that the CADM XML XSD will be the standard Universal API, and allow COTS tool vendors to integrate this into their tool capabilities. DARS will additionally add additional architecture products to the structured capability which may include the OV 6 a,b,c products along with SV 4,5,6,9, and 10A,b,c. Also data exchange capabilities will include the Joint Resource Allocation Module (JRAM), and other executable or modeling and simulation tools. DARS goals for FY 2005 are aggressive and include implementing DARS 3.0 in Feb 2005. DARS will also support the transfer of CADM XML to the international data exchange standard AP 233 using the CADM XML XSLT as the core driver for the transformation. The Department of the Air Force, Army, and Navy CIO's are collaborating in the development of DARS to ensure the success of all. New DARS releases are scheduled for every six months during FY 2005 (DARS 5.0 and 4.0).

B. Accomplishments/Planned Program

	FY 2005	FY 2006	FY 2007
Accomplishment/ Effort/Subtotal	1.049	1.190	1.249
Cost			
RDT&E Articles Quantity *(as applicable)	1		

FY 2005 Accomplishments: (\$1.049 million)

- Continued the expansion of implementing architecture products for the structured capability using CADM XML
- Continued to explore the integration of CADM XML into an international data exchange standard by combining AP 233
 (international data exchange standard for systems engineering and CADM XML)
- Expanded the data exchange capabilities between DARS and other data repositories
- Explored the capability to make architectures executable by providing data exchange capabilities with decision support and modeling and simulation systems such as Joint Resources Allocation Module (JRAM)
- Explored capabilities to authenticate authoritative data sources for architecture data
- Implement Net-Centric services within DARS and explore options for including DARS data as part of the Core Enterprise Services
- Implemented capability for DoD program managers and others to build OMB form 300s from DARS architecture data
- Integrated both NCOW Reference Models and the DoD Enterprise Architecture Reference Models into the DARS and CADM data structures
- Implemented two new DARS versions (4.0 and 5.0) based on new user requirements
- Implemented 'data harvesting' capabilities required to build integrated architecture packages, coupled with portfolio management and analytical capabilities for decision making regarding architecture data usage
- Explored and developed capabilities for architecture data reuse to dynamically assemble architectures or to build "tailorable" data sets based on architecture data to assist decision makers
- Initiated the exploration of a "Federated DARS" Capability for architecture data exchange
- Initiated the concept of "Earned Value" for architectures through establishment of a business rules model
- Initiate the exploration of integration of a "Core Architecture Data Model (CADM) Business Rules

FY 2006 Plans: (\$1.190 million)

- Demonstrate capabilities to operations by supporting both in garrison and deployed forces to move and analyze architecture data
- Implement changes required to DARS from the new DoD Architecture Framework requirements to include executable architectures, Net-Centric impacts on architecture products, new executive formats, portfolio management requirements in DARS 6.0
- Complete ability for DoD Program managers to use DARS data to build OMB form 300s and 53s
- Implement new international data exchange architecture standard based on CADM XML
- Expand DARS data exchange capabilities to modeling and simulation systems, decision support systems and budgetary systems
- Continue the exploration and expansion DARS as part of a "Federated Net-Centric" environment for data exchange
- Continue exploration of DARS integration into the "Core Enterprise Services" of Net-Centric Enterprise Services (NCES)
- Continue expansion of the "rules based model" to establish "earned value" for architecture data and architectures
- Continue to expand "authoritative data sources" processes and policies

FY 2007 Plans: (\$1.249 million)

- Continue to implement capabilities required to meet changes to the DoD Architecture Framework (DoDAF) that will include capabilities to expand the "dynamic" assembly of architectures based on mission or process requirements or "tailorable packages based on architecture data for assistance in decision making (DARS 7.0)
- Continue integration of DARS data services into "Core Enterprise Services"
- Fully integrate DARS data harvesting capabilities into a Federated Data-Centric environment
- C. Other Program Funding Summary: N/A
- D. Acquisition Strategy: N/A
- E. Major Performers: DIA, DISA, NGA, NSA, NRO, Army HQ/G6/CIO, Navy CEC program, SPAWAR SOCOM, PACOM, CENTCOM, USFK, EUCOM, SOUTHCOM, NORTHCOM, TRANSCSOM, USMC Quantico, JFCOM, STRATCOM, NATO, Hanscom AFB, CECOM, INSCOM

E	xhibit R-2a, RDT&E	Project Ju	stification		Date: Feb	ruary 2006	
Appropriation/Budget Activity RDT&E, Defense-Wide, BA 6		Project Name and Number: Integrated Planning and Management/PE 0605170D8Z				and 	
Cost (\$ in millions)	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Project Name: Integrated Planning & Management	1.807	1.935	2.034	2.131	2.128	2.180	2.231
]				

A. Mission Description and Budget Item Justification:

Provide a single integrated C2 structure across the Department of Defense supporting every echelon of command from national to tactical. Transform the existing set of dedicated, single purpose command and control (C2) systems into an integrated framework to support the flow of information into the command structure and enhance decision. Assure policies and a strategy for a unified, flexible, and adaptable full-spectrum command and control capability for warfighters and senior leaders within a globally connected common information environment (CIE). Support the Joint Staff, JFCOM, and STRATCOM in development of an information integration and decision portfolio of services and applications that will decompose existing C2 programs of record into essential capabilities supporting Joint Operating Concepts and Joint Mission Essential Functions.

B. Accomplishments/Planned Program

	FY 2004	FY 2005	FY 2006	FY 2007
Accomplishment/ Effort/Subtotal		1.807	1.935	2.034
Cost				
RDT&E Articles Quantity *(as applicable)				
				

FY 2005 Accomplishments: (\$1.807 million)

- Produced Converged C2 Capabilities, C2 Vision, DoD C2 Policy and C2 Operational Concept
- Developed, coordinated and implemented C2-related ontologies, taxnonomies, and registries.
- Developed, coordinated and implemented policy and directives necessary to achieve the converged C2 capabilities.
- Developed, evaluated the application of C2 metrics criteria to guide C2 convergence from national through Tactical levels of C2
- Specified overarching system engineering process.
- Developed of Initial Capabilities Document (ICD)
- Developed global C2 applications and services information integration framework.

FY 2006 Plans: (\$1.935 million)

- Continue all efforts initiated in FY 2005.
- Developing overarching policies to integrate or migrate C2 systems for senior leadership into a net-centric environment.
- Assist the COCOMS/Services in articulating C2 net-centric concepts and top level requirements that must be addressed by the JCIDS process.
- Work with Joint Staff, Services and COCOMs on the development of Net-centric C2 Functional Area Analysis (FAA/Functional Needs Analysis (FNA)/Functional SolutionAnalysis (FSA) as appropriate.

FY 2007 Plans: (\$2.034 million)

- As the net-centric environment evolves, update published C2 policies and concepts.
- Build on all previous efforts to accomplish C2 capability gap, shortfall, and overlap assessments and institutionalize the process.
- Influence Programs of Record based on identified gaps and overlaps

C. Other Program Funding Summary:

 FY 2005
 FY 2006
 FY 2007
 FY 2008
 FY 2009
 FY 2010
 FY 2011
 Cost

 2.695
 2.775
 2.858
 2.945
 3.000
 3.000
 3.000
 20.273

D. Acquisition Strategy: N/A

O&M, DW (PE0902198D8Z)

E. Major Performers: N/A

UNCLASSIFIED
R-1 Shopping List Item No. 131
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