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Exhibit R-2, RDT&E Budget Item Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600: <i>Research, Development, Test & Evaluation, Air Force I BA 7: Operational Systems Development</i>	R-1 Program Element (Number/Name) PE 0305022F / <i>ISR Modernization & Automation Dvmt (IMAD)</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
Total Program Element	-	19.230	15.888	13.138	0.000	13.138	19.780	20.151	20.575	21.033	Continuing	Continuing
675197: <i>Core Technology</i>	-	15.936	12.740	9.781	0.000	9.781	16.314	16.619	16.969	17.347	Continuing	Continuing
675306: <i>Analysis Enterprise</i>	-	3.294	3.148	3.357	0.000	3.357	3.466	3.532	3.606	3.686	Continuing	Continuing

A. Mission Description and Budget Item Justification

AF ISR must adapt large data sets and condition it into mission ready data sets, allowing personnel to discover, manage, and analyze data and transform it into living intelligence.

Kill Chain Automation applies new methodologies; advanced artificial intelligence and machine learning; ensures data is accessible, discoverable, and interoperable; and delivers decision advantage from detection to mission execution.

Supports National Defense Strategy priority of operating at the "speed of relevance."

Supports Next Generation ISR Dominance Flight Plan.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such programs funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY21 0M was expended for civilian pay expenses in this program element and in FY22 0M is forecasted for civilian pay expenses in this program element.

This program is in Budget Activity 7, Operational System Development because this budget activity includes development efforts to upgrade systems that have been fielded or have received approval for full rate production and anticipate production funding in the current or subsequent fiscal year.

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B. Program Change Summary (\$ in Millions)	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total
Previous President's Budget	19.230	18.888	0.000	0.000	0.000
Current President's Budget	19.230	15.888	13.138	0.000	13.138
Total Adjustments	0.000	-3.000	13.138	0.000	13.138
• Congressional General Reductions	0.000	-3.000			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	0.000	0.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	0.000	0.000			
• Other Adjustments	0.000	0.000	13.138	0.000	13.138

Change Summary Explanation

The FY 2022 President's Budget submittal did not reflect FY 2023 through FY 2026 funding. Therefore, an explanation of the change between the two budget positions for FY2023 cannot be made in a relevant manner.

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Exhibit R-2A, RDT&E Project Justification: PB 2023 Air Force **Date:** April 2022

Appropriation/Budget Activity 3600 / 7	R-1 Program Element (Number/Name) PE 0305022F / <i>ISR Modernization & Automation Dvmt (IMAD)</i>	Project (Number/Name) 675197 / <i>Core Technology</i>
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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675197: <i>Core Technology</i>	-	15.936	12.740	9.781	0.000	9.781	16.314	16.619	16.969	17.347	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

Supports National Defense Strategy priority of operating at the "speed of relevance."

Supports Next Generation ISR Dominance Flight Plan.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022	FY 2023
Title: Algorithmic Warfare	15.936	12.740	9.781
Description: SECAF directed the AF to invest in a more automated environment to relieve strain on manpower in the out years. Algorithmic Warfare can provide world-class ISR support to Joint Operations at the scale and speed required in modern warfare against our adversaries. This effort supports National Defense Strategy of operating at the "speed of relevance."			
FY 2022 Plans: Continue to develop/maintain ISR Algorithmic Warfare - automation of tools and machine learning algorithms. Begin to incorporate artificial intelligence methods			
FY 2023 Plans: Continue to develop ISR algorithmic Warfare - automation of tools and machine learning algorithms. Continue to investigate AI methods.			
FY 2022 to FY 2023 Increase/Decrease Statement: NDAA Congressional mark of FY22 PB -- 3.0M decrease of RDT&E -Selected projects will endure a reduction in funding, limits impact to innovations.			
Despite the mark, FY22 is already on track to exceed the obligation and execution rate compared to previous Fiscal Year.			
Accomplishments/Planned Programs Subtotals	15.936	12.740	9.781

C. Other Program Funding Summary (\$ in Millions)

N/A

Remarks

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D. Acquisition Strategy
N/A

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Exhibit R-4, RDT&E Schedule Profile: PB 2023 Air Force		Date: April 2022
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FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

Algorithmic Warfare																												
Begin Algorithm Development																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2023 Air Force		Date: April 2022
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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Algorithmic Warfare</i>				
Begin Algorithm Development	1	2021	4	2027

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COST (\$ in Millions)	Prior Years	FY 2021	FY 2022	FY 2023 Base	FY 2023 OCO	FY 2023 Total	FY 2024	FY 2025	FY 2026	FY 2027	Cost To Complete	Total Cost
675306: <i>Analysis Enterprise</i>	-	3.294	3.148	3.357	0.000	3.357	3.466	3.532	3.606	3.686	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

AF ISR must adapt large data sets and condition it into mission sets, allowing personnel to discover, manage, and analyze data and transform it into living intelligence. Kill Chain Automation applies new methodologies; advances automation and machine learning algorithms; ensures data is accessible, agreeable, and interoperable; and delivers decision advantage.

Supports National Defense Strategy priority of operating at the "speed of relevance."

Supports Next Generation ISR Dominance Flight Plan.

B. Accomplishments/Planned Programs (\$ in Millions)

	FY 2021	FY 2022	FY 2023
Title: Kill Chain Automation	3.294	3.148	3.357
Description: AF's first ISR investment to work large data sets, automation, COTS IT tolls, and data aggregation.			
FY 2022 Plans: Continue to fund software development to automate ISR analyst workflows; analysts currently spend 80 percent of their time searching for data and 20 percent of their time making sense of information. Human-machine teaming allows humans and machines to focus on activities they each do best			
FY 2023 Plans: Continue to fund software development to automate ISR analyst workflows; analysts currently spend 80 percent of their time searching for data and 20 percent of their time making sense of information. Human-machine teaming allows humans and machines to focus on activities they each do best			
FY 2022 to FY 2023 Increase/Decrease Statement: Increase due to inflation			
Accomplishments/Planned Programs Subtotals	3.294	3.148	3.357

C. Other Program Funding Summary (\$ in Millions)

N/A

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C. Other Program Funding Summary (\$ in Millions)

Remarks

D. Acquisition Strategy

N/A

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FY 2021				FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027			
1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4

<i>Kill Chain Automation</i>	
Begin automation development	

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Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Kill Chain Automation</i>				
Begin automation development	1	2021	4	2027