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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2024 Air Force **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
Total Program Element	-	0.000	51.747	118.826	0.000	118.826	61.455	73.122	74.411	76.389	Continuing	Continuing
643721: <i>Experimental Operations Unit (EOU)</i>	-	0.000	0.000	68.956	0.000	68.956	44.461	55.534	56.548	57.723	Continuing	Continuing
645340: <i>Viper Experimentation and Next-gen Operations Model (VENOM)</i>	-	0.000	0.000	49.870	0.000	49.870	16.994	17.588	17.863	18.666	Continuing	Continuing
647123: <i>Autonomous Collaborative Technologies</i>	-	0.000	51.747	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	51.747

**Note**

This program, BA 4, PE 0207179F, project , Experimental Operations Unit, is a new start.  
 This program, BA 4, PE 0207179F, project , Viper Experimentation and Next-gen Operations Model, is a new start.

In FY2024 PE 0207179F, Project 647123 "Autonomous Collaborative Technologies" was retitled to "Collaborative Combat Aircraft" and transferred from PE 0207179F "Autonomous Collaborative Platforms" to PE 0207110F "Next Generation Air Dominance" in order to align with the SECAF's NGAD Family of Systems Operational Imperative.

**A. Mission Description and Budget Item Justification**

Autonomous Collaborative Platforms (ACP) are un-crewed weapon systems designed to work in conjunction with current and future aircraft to provide operational flexibility and enhance operational effectiveness. Key ACP attributes include tailored cost of platforms, rapidly updateable software, autonomy, interoperability with multiple platforms and network capabilities, agility of use, lethality, and ability to penetrate challenging air environments. The program matures technology to reduce risk through development, integration, experimentation and test activities. ACP will explore Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Policy (DOTMLPF-P) concepts for un-crewed vehicles. Program activities will include the employment of digital acquisitions through the application of digital engineering, agile software development, and open systems architectures. Funding provides program management support, digital systems infrastructure, operational concept exploration, technology studies, multi-domain integration assessments, operational and system architecture development, maturation and risk reduction of air superiority related technologies including weapons systems and integrated system concept development and demonstration.

FY24 PE 0207179F is submitting a Technical Adjustment to realign \$17.813 million to PE 0605807F for, RDT&E Management Support

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2023, \$3.15M is forecast for civilian pay expenses in this program element.

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**Exhibit R-2, RDT&E Budget Item Justification:** PB 2024 Air Force **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600: <i>Research, Development, Test &amp; Evaluation, Air Force I BA 4: Advanced Component Development &amp; Prototypes (ACD&amp;P)</i>	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>
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This effort is in Budget Activity 4, Advanced Component Development and Prototypes (ACD&P), because efforts are necessary to evaluate integrated technologies, representative modes or prototype systems in a high fidelity and realistic operating environment.

<b>B. Program Change Summary (\$ in Millions)</b>	<b><u>FY 2022</u></b>	<b><u>FY 2023</u></b>	<b><u>FY 2024 Base</u></b>	<b><u>FY 2024 OCO</u></b>	<b><u>FY 2024 Total</u></b>
Previous President's Budget	0.000	51.747	51.895	0.000	51.895
Current President's Budget	0.000	51.747	118.826	0.000	118.826
Total Adjustments	0.000	0.000	66.931	0.000	66.931
• Congressional General Reductions	0.000	0.000			
• 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	66.931	0.000	66.931

**Change Summary Explanation**

Funding increased due to two new BPAC's added to this PE (0207179F)

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Air Force **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / Autonomous Collaborative Platforms	<b>Project (Number/Name)</b> 643721 / Experimental Operations Unit (EOU)
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
643721: <i>Experimental Operations Unit (EOU)</i>	-	0.000	0.000	68.956	0.000	68.956	44.461	55.534	56.548	57.723	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**  
This program, BA 4, PE 0207179F, project , Experimental Operations Unit, is a new start.

**A. Mission Description and Budget Item Justification**

The Experimental Operations Unit (EOU) program will begin to explore Doctrine, Organization, Training, Materiel, Leadership, Personnel, Facilities, and Policy (DOTMLPF-P) concepts for Collaborative Combat Aircraft (CCA). The program activities will reduce risk to operations of CCA employment with crewed aircraft. Funding provides program management and test support, operational concepts and studies, and infrastructure investment for information technology, test, and training. The program will serve as early risk reduction for employment of CCA's with crewed aircraft.

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

	FY 2022	FY 2023	FY 2024
<b>Title:</b> Experimental Operations Unit	-	0.000	68.956
<b>Description:</b> The EOU candidate concepts consist of operational analyses, studies and identifications of operation concepts. Ongoing studies are conducted to refine EOU concepts related to test and employment of un-crewed platforms as well as employment with crewed partners.			
<b>FY 2023 Plans:</b> N/A			
<b>FY 2024 Plans:</b> EOU will conduct studies to refine EOU concepts related to test and employment of un-crewed platforms as well as employment with crewed partners.			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increased due to the effort being a New Start			
<b>Accomplishments/Planned Programs Subtotals</b>	-	0.000	68.956

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

N/A

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative P latforms</i>	<b>Project (Number/Name)</b> 643721 / <i>Experimental Operations Unit (EOU)</i>

**D. Acquisition Strategy**

Experimental Operations Unit acquisition strategy is based on a multi-domain capabilities development planning and oversight framework. Cross-functional teams will conduct analysis, demonstrations, and experiments to develop and iterate CONOPS for CCA to provide solutions to current and future air superiority capability gaps.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Air Force</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative P latforms</i>	<b>Project (Number/Name)</b> 643721 / <i>Experimental Operations Unit (EOU)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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

<b><i>Experimental Operations Unit</i></b>	
Concept Exploration	
Integration Studies	
Risk Reduction	

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>	<b>Project (Number/Name)</b> 643721 / <i>Experimental Operations Unit (EOU)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Experimental Operations Unit</i></b>				
Concept Exploration	1	2024	4	2028
Integration Studies	1	2024	4	2028
Risk Reduction	1	2024	4	2028

**Note**  
The EOU is an enduring program with iterative DOTMLPF-P activities that do not conform to discrete event timelines. Further specifics may be added as contracts are awarded.

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**Exhibit R-2A, RDT&E Project Justification:** PB 2024 Air Force **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / Autonomous Collaborative Platforms	<b>Project (Number/Name)</b> 645340 / Viper Experimentation and Next-gen Operations Model (VENOM)
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COST (\$ in Millions)	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	FY 2025	FY 2026	FY 2027	FY 2028	Cost To Complete	Total Cost
645340: Viper Experimentation and Next-gen Operations Model (VENOM)	-	0.000	0.000	49.870	0.000	49.870	16.994	17.588	17.863	18.666	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

This program, BA 4, PE 0207179F, project , Viper Experimentation and Next-gen Operations Model, is a new start.

**A. Mission Description and Budget Item Justification**

The Viper Experimentation and Next-gen Operations Model (VENOM) project will serve as a flying autonomy testbed for the Collaborative Combat Aircraft (CCA) program. The program activities will reduce risk to CCA through test and demonstration of the autonomy reference architecture and autonomy skills on a man-on-the-loop aircraft. Funding provides program management and test support to mature autonomy architecture and software prior to transition to CCA. The program will enable testing of autonomy on a crewed aircraft to serve as early risk reduction for CCA autonomy.

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

	FY 2022	FY 2023	FY 2024
<b>Title:</b> Viper Experimentation and Next-gen Operations Model	0.000	0.000	49.870
<b>Description:</b> The VENOM candidate concepts consist of establishing man-on-the-loop autonomy testbed and implementing initial autonomy reference architecture to reduce risk for CCA autonomy.			
<b>FY 2023 Plans:</b> N/A			
<b>FY 2024 Plans:</b> VENOM will incorporate the latest autonomy reference architecture as well as implement and test autonomy skills to mature CCA autonomy.			
<b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding increased due to the effort being a New Start			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	0.000	49.870

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

N/A

**Remarks**

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>	<b>Project (Number/Name)</b> 645340 / <i>Viper Experimentation and Next-gen Operations Model (VENOM)</i>

**D. Acquisition Strategy**

The VENOM acquisition strategy is based on modifying an existing man-on-the-loop aircraft to produce a flying testbed to implement autonomous reference architecture and autonomy skills. The autonomy testing on the crewed aircraft will serve as early risk reduction for CCA autonomy.



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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Air Force</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative P</i> <i>latforms</i>	<b>Project (Number/Name)</b> 645340 / <i>Viper Experimentation and Next-</i> <i>gen Operations Model (VENOM)</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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

<b>VENOM</b>																												
Risk Reduction																												

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative P latforms</i>	<b>Project (Number/Name)</b> 645340 / <i>Viper Experimentation and Next- gen Operations Model (VENOM)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b>VENOM</b>				
Risk Reduction	1	2024	4	2028

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force										<b>Date:</b> March 2023		
<b>Appropriation/Budget Activity</b> 3600 / 4					<b>R-1 Program Element (Number/Name)</b> PE 0207179F / Autonomous Collaborative Platforms				<b>Project (Number/Name)</b> 647123 / Autonomous Collaborative Technologies			
<b>COST (\$ in Millions)</b>	<b>Prior Years</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024 Base</b>	<b>FY 2024 OCO</b>	<b>FY 2024 Total</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>Cost To Complete</b>	<b>Total Cost</b>
647123: Autonomous Collaborative Technologies	-	0.000	51.747	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	51.747
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

**Note**

In FY2024 PE 0207179F, Project 647123 "Autonomous Collaborative Technologies" was retitled to "Collaborative Combat Aircraft" and transferred from PE 0207179F "Autonomous Collaborative Platforms" to PE 0207110F "Next Generation Air Dominance," in order to align with the SECAF's NGAD Family of Systems Operational Imperative.

**A. Mission Description and Budget Item Justification**

Autonomous Collaborative Technologies are un-crewed weapon systems primarily focused on projecting air power against adversaries. These new un-crewed air combat vehicles are designed to work in conjunction with current and future aircraft to provide operational flexibility, as directed by Department of the Air Force leadership. The program matures technology from the Science and Technology (S&T) Skyborg Vanguard program to reduce risk through development, integration and test activities, speeding capabilities to warfighters. Key ACP attributes include tailored cost of platforms, rapidly updateable software, autonomy, interoperability with multiple platforms and network capabilities, agility of use, lethality, and ability to penetrate challenging air environments. Program activities will include the employment of digital acquisitions through the application of digital engineering, agile software development, and open systems architectures. Funding provides program management support, operational concept exploration, technology studies, multi-domain integration assessments, operational and system architecture development, maturation and risk reduction of air superiority related technologies including weapons systems and integrated system concept development and demonstration.

FY24 PE 0207179F is submitting a Technical Adjustment to realign \$17.813 million to 0605807F for RDT&E Management Support.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver weapon system capability. The use of such program funds would be in addition to the civilian pay expenses budgeted in program element 0605827F, 0605828F, 0605829F, 0605831F, 0605832F, 0605833F, 0605898F, 0606398F. In FY2023, \$3.15M is forecast for civilian pay expenses in this program element.

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

	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<b>Title:</b> Autonomous Collaborative Platform	0.000	51.747	0.000
<b>Description:</b> The Autonomous Collaborative Platform candidate concepts consist of operational analyses/studies, technology candidate assessments, development, integration, prototyping and demonstrations to identify operational concepts and technologies that project air power against adversaries. Ongoing studies are conducted to refine ACP concepts and air superiority related technologies.			

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<b>Exhibit R-2A, RDT&amp;E Project Justification:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>	<b>Project (Number/Name)</b> 647123 / <i>Autonomous Collaborative Technologies</i>

<b>B. Accomplishments/Planned Programs (\$ in Millions)</b>	<b>FY 2022</b>	<b>FY 2023</b>	<b>FY 2024</b>
<p><b>FY 2023 Plans:</b> Autonomous Collaborative Platform conducts analyses, identifies technology candidates, performs concept refinement studies, development, integration, prototyping and demonstrations to reduce risk and mature ACP concepts and air superiority related technologies.</p> <p><b>FY 2024 Plans:</b> FY2024 efforts will be transferred to PE 0207110F</p> <p><b>FY 2023 to FY 2024 Increase/Decrease Statement:</b> Funding decreased due to the transfer to PE 0207110F</p>			
<b>Accomplishments/Planned Programs Subtotals</b>	0.000	51.747	0.000

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

<u>Line Item</u>	<u>FY 2022</u>	<u>FY 2023</u>	<u>FY 2024</u> <u>Base</u>	<u>FY 2024</u> <u>OCO</u>	<u>FY 2024</u> <u>Total</u>	<u>FY 2025</u>	<u>FY 2026</u>	<u>FY 2027</u>	<u>FY 2028</u>	<u>Cost To</u> <u>Complete</u>	<u>Total Cost</u>
• RDTE 04 0207110F: <i>Next Generation Air Dominance</i>	0.000	0.000	392.210	0.000	392.210	513.752	245.967	1,643.635	3,032.756	Continuing	Continuing

**Remarks**

**D. Acquisition Strategy**  
The Autonomous Collaborative Platform acquisition strategy is based on a multi-domain capabilities development planning and oversight framework. Cross-functional teams will conduct analysis, demonstrations, and experiments to quantify the operational value of alternative concepts and technologies to provide solutions to current and future air superiority capability gaps.

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**Exhibit R-3, RDT&E Project Cost Analysis: PB 2024 Air Force** **Date:** March 2023

<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / Autonomous Collaborative Platforms	<b>Project (Number/Name)</b> 647123 / Autonomous Collaborative Technologies
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<b>Product Development (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ACP Research/ Development Efforts	Various	Various : TBD	-	-		47.697		-		-		-	0.000	47.697	-
<b>Subtotal</b>			-	-		47.697		-		-		-	0.000	47.697	N/A

**Remarks**  
Contractual specifics are not available at this level of security classification.

<b>Support (\$ in Millions)</b>				FY 2022		FY 2023		FY 2024 Base		FY 2024 OCO		FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost			
ACP Acquisition Support	Various	Various : TBD	-	-		4.050		-		-		-	0.000	4.050	-
<b>Subtotal</b>			-	-		4.050		-		-		-	0.000	4.050	N/A

**Remarks**  
Includes civilian pay

	Prior Years	FY 2022	FY 2023	FY 2024 Base	FY 2024 OCO	FY 2024 Total	Cost To Complete	Total Cost	Target Value of Contract
<b>Project Cost Totals</b>	-	-	51.747	-	-	-	0.000	51.747	N/A

**Remarks**  
Contractual specifics are not available at this level of security classification.

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<b>Exhibit R-4, RDT&amp;E Schedule Profile: PB 2024 Air Force</b>		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>	<b>Project (Number/Name)</b> 647123 / <i>Autonomous Collaborative Technologies</i>

FY 2022				FY 2023				FY 2024				FY 2025				FY 2026				FY 2027				FY 2028			
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

<b><i>Autonomous Collaborative Platform</i></b>	
Concept Exploration	██████████
Integration Studies	██████████
Technology Risk Reduction / Prototyping	██████████

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<b>Exhibit R-4A, RDT&amp;E Schedule Details:</b> PB 2024 Air Force		<b>Date:</b> March 2023
<b>Appropriation/Budget Activity</b> 3600 / 4	<b>R-1 Program Element (Number/Name)</b> PE 0207179F / <i>Autonomous Collaborative Platforms</i>	<b>Project (Number/Name)</b> 647123 / <i>Autonomous Collaborative Technologies</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<b><i>Autonomous Collaborative Platform</i></b>				
Concept Exploration	1	2023	4	2023
Integration Studies	1	2023	4	2023
Technology Risk Reduction / Prototyping	1	2023	4	2023