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Exhibit R-2, RDT&E Budget Item Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity					R-1 Program Element (Number/Name)							
3600: Research, Development, Test & Evaluation, Air Force I BA 4: Advanced Component Development & Prototypes (ACD&P)					PE 0604317F I Technology Transfer							
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
Total Program Element	-	17.644	16.924	23.614	0.000	23.614	13.662	13.732	13.792	14.030	Continuing	Continuing
646003: Partnership Intermediary Agreement(s)	-	17.644	6.999	3.096	0.000	3.096	3.146	3.213	3.271	3.330	Continuing	Continuing
646030: AFwerX	-	0.000	9.925	20.518	0.000	20.518	10.516	10.519	10.521	10.700	0.000	72.699

A. Mission Description and Budget Item Justification

The Technology Transfer Program captures and manages all intellectual property (IP) (patents and inventions) developed by the Air Force and leads efforts to transfer the IP to commercial sector for the production and transition of the technology to the warfighter.

TechLink, Department of Defense's (DoD)'s first National level Partnership Intermediary (PI), directly supports these activities for all Air Force, Army, Navy, and independent DoD Research Laboratories. TechLink brokers technology transfer agreements between DoD laboratories and US industry for the manufacture and use of DoD inventions. These agreements enable DoD to leverage the investment and capabilities of the private-sector in development of new defense-related products and services, lowering DoD costs and also helping ensure that DoD-developed or co-developed technologies are transitioned to DoD operational use. This program impacts virtually all technology fields, including medicine, software, electronics, communications, advanced materials, and energy-related technologies.

In FY 2019, Project 646030, AFWERX, was created under this program element to provide centralized funding for AFWERX activities. AFWERX links innovators to the Air Force's research and development activities, program offices, development planning & experimentation teams, and end users. These linkages will create capability options and prototype opportunities for the Air Force. AFWERX was previously funded in FY 2017 and FY 2018 with execution year funding from various Air Force Science and Technology (S&T) RDT&E program elements.

This program element may include necessary civilian pay expenses required to manage, execute, and deliver AFWERX capabilities. The use of such program funds would be in addition to the civilian pay expenses budgeted in program elements 0605826F, 0605827F, 0605828F, 0605829F, 0605830F, 0605831F, 0605832F, 0605898F, and 0605833F.

As directed in the FY 2018 NDAA, Sec 825, amendment to PL 114-92 FY 2016 NDAA, Sec 828 Penalty for Cost Overruns, the FY 2018 Air Force penalty total is \$14.373M. The calculated percentage reduction to each research, development, test and evaluation and procurement account will be allocated proportionally from all programs, projects, or activities under such account.

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.

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B. Program Change Summary (\$ in Millions)	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total
Previous President's Budget	3.295	12.960	13.021	0.000	13.021
Current President's Budget	17.644	16.924	23.614	0.000	23.614
Total Adjustments	14.349	3.964	10.593	0.000	10.593
• Congressional General Reductions	-0.022	-0.036			
• Congressional Directed Reductions	0.000	0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds	15.000	4.000			
• Congressional Directed Transfers	0.000	0.000			
• Reprogrammings	0.000	0.000			
• SBIR/STTR Transfer	-0.629	0.000			
• Other Adjustments	0.000	0.000	10.593	0.000	10.593
Congressional Add Details (\$ in Millions, and Includes General Reductions)					
Project: 646003: Partnership Intermediary Agreement(s)					
Congressional Add: Program Increase - technology partnerships					
Congressional Add Subtotals for Project: 646003					
Congressional Add Totals for all Projects					
Change Summary Explanation					
Increase in FY 2020 for additional AFWERX virtual collaboration tools/analytics, innovation hub support, and civilian manpower.					

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0604317F / Technology Transfer				Project (Number/Name) 646003 / Partnership Intermediary Agreement(s)			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
646003: Partnership Intermediary Agreement(s)	-	17.644	6.999	3.096	0.000	3.096	3.146	3.213	3.271	3.330	Continuing	Continuing
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		
A. Mission Description and Budget Item Justification												
This project accomplishes the following: (1) establish license agreements to transfer patented inventions from Department of Defense (DoD) research laboratories to industry for conversion into new dual-use products and services to support DoD's defense mission and benefit the US economy; and (2) establish collaborative research and development agreements (CRADAs) with the private-sector for development of new, innovative, dual-use technology. Both of these activities enable DoD to leverage the investment and capabilities of the private-sector in development of new defense-related products and services, lowering DoD costs and also helping ensure that DoD-developed or co-developed technologies are transitioned to DoD operational use.												
B. Accomplishments/Planned Programs (\$ in Millions)									FY 2018	FY 2019	FY 2020	
Title: Technology Transfer									3.160	2.999	3.096	
Description: Enhance and expand transfer of technologies between DoD and the commercial sector.												
FY 2019 Plans: Continue to implement cost effective approaches to increase and accelerate transfer of technologies developed at DoD laboratories and facilitate their transition to the warfighter. Evaluate and market DoD laboratory inventions and broker technology transfer agreements/CRADAs, to include commercial licenses, that will support the US defense mission and benefit the US economy. Engage the innovative capabilities of non-traditional defense contractors in developing and commercializing new dual-use products and services.												
FY 2020 Plans: Continue to implement new cost-effective approaches to further increase and accelerate transfer of technologies developed at DoD laboratories and facilitate their transition to the warfighter. Evaluate and market DoD laboratory inventions and broker technology transfer agreements/CRADAs, to include commercial licenses, that will support the US defense mission and benefit the US economy. Engage the innovative capabilities of non-traditional defense contractors in developing and commercializing new dual-use products and services.												
FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 increased compared to FY 2019 by \$0.097 million. Justification for the increase is described in the plans above.												
Accomplishments/Planned Programs Subtotals									3.160	2.999	3.096	

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Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>	Project (Number/Name) 646003 / <i>Partnership Intermediary Agreement(s)</i>	
		FY 2018	FY 2019
Congressional Add: Program Increase - technology partnerships		14.484	4.000
FY 2018 Accomplishments: Conducted Congressionally directed efforts.			
FY 2019 Plans: Conduct Congressionally directed efforts.			
Congressional Adds Subtotals		14.484	4.000
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
N/A			
D. Acquisition Strategy			
This effort uses a Partnership Intermediary Agreement (PIA) with TechLink at Montana State University. Through this agreement TechLink helps the Department of Defense to establish licensing and other technology transfer agreements with US industry. The effort is run through the Air Force Research Laboratory/Small Business office at Wright Patterson Air Force Base.			
E. Performance Metrics			
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>				Project (Number/Name) 646003 / <i>Partnership Intermediary Agreement(s)</i>					

Support (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
License DoD inventions for conversion into new products and services	PO	TechLink : Bozeman, MT	-	3.160	Jan 2019	2.999	Jan 2019	3.096	Jan 2020	-		3.096	Continuing	Continuing	-
Congressional Add - Enhance technology transfer activities and outreach	PO	TechLink : Bozeman, MT	-	14.484	Sep 2018	4.000	Apr 2019	-		-		-	0.000	18.484	-
Subtotal			-	17.644		6.999		3.096		-		3.096	Continuing	Continuing	N/A

	Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals	-	17.644		6.999		3.096		-		3.096	Continuing	Continuing	N/A

Remarks

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity 3600 / 4										R-1 Program Element (Number/Name) PE 0604317F / Technology Transfer									
										Project (Number/Name) 646003 / Partnership Intermediary Agreement(s)									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
Partnership Intermediary																												
Tech Transfer Partnership Intermediary																												
Congressional Add																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>	Project (Number/Name) 646003 / <i>Partnership Intermediary Agreement(s)</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>Partnership Intermediary</i>				
Tech Transfer Partnership Intermediary	1	2018	4	2024
Congressional Add	1	2018	4	2019

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Exhibit R-2A, RDT&E Project Justification: PB 2020 Air Force										Date: February 2019		
Appropriation/Budget Activity 3600 / 4					R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>				Project (Number/Name) 646030 / <i>AFwerX</i>			
COST (\$ in Millions)	Prior Years	FY 2018	FY 2019	FY 2020 Base	FY 2020 OCO	FY 2020 Total	FY 2021	FY 2022	FY 2023	FY 2024	Cost To Complete	Total Cost
646030: <i>AFwerX</i>	-	0.000	9.925	20.518	0.000	20.518	10.516	10.519	10.521	10.700	0.000	72.699
Quantity of RDT&E Articles	-	-	-	-	-	-	-	-	-	-		

A. Mission Description and Budget Item Justification

This project improves Air Force capabilities by connecting innovators, simplifying technology transfer, and accelerating results. AFWERX will accomplish this mission by: (1) Connecting diverse, innovative members from industry, academia, and government; (2) Creating capabilities options and prototype opportunities for the Air Force; (3) Facilitating streamlined acquisition processes; and (4) Fostering a culture of innovation in the Air Force.

In FY 2019, Project 646030, AFWERX, was created under PE 0604317F, Technology Transfer, to provide centralized funding for AFWERX activities. This is an administrative alignment and not a new start. AFWERX was previously funded in FY 2017 and FY 2018 with execution year funding from various Air Force Science and Technology (S&T) RDT&E program elements.

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

	FY 2018	FY 2019	FY 2020
Title: AFWERX Description: Connect diverse, innovative members from industry, academia, and government to create capabilities options and prototype opportunities for the Air Force. FY 2019 Plans: Continue to utilize the District of Columbia (DC), Las Vegas, and Austin Innovation Hubs to host events, implement new innovative competitions, collaborate with academia and think tanks, and work with industry through technology accelerator programs. FY 2020 Plans: Host additional innovative competitions to support warfighter needs at the DC, Las Vegas, and Austin Innovation hubs. Increase collaboration with government innovative centers, academia, thinks tanks, and industry through technology accelerator programs. Utilize additional virtual collaboration tools and analytics. Additional AFWEX Innovation Hub locations may be added as directed by Air Force Senior Leadership. FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 increased compared to FY 2019 by \$10.000 million. Funding increased due to additional investments in virtual collaboration tools/analytics and innovation competitions/projects.	0.000	9.925	19.925
Title: AFWERX Acquisition Support Description: Provide professional government civilian workforce in support of AFWERX programs and activities. FY 2019 Plans:	0.000	0.000	0.593

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Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>	Project (Number/Name) 646030 / <i>AFwerX</i>	
B. Accomplishments/Planned Programs (\$ in Millions)		FY 2018	FY 2019
<p>In FY 2019 and prior, this effort is funded by the Air Force Research Laboratory (AFRL) with Air Force Science and Technology (S&T) RDT&E funding.</p> <p>FY 2020 Plans: Continue to provide professional government civilian workforce in support of all AFWERX programs and activities. This includes three government civilians with average work year costs of \$0.197 million.</p> <p>FY 2019 to FY 2020 Increase/Decrease Statement: FY 2020 increased compared to FY 2019 by \$0.593 million. Funding increased due to realignment of AFWERX manpower costs from AFRL to the AFWERX program.</p>			
Accomplishments/Planned Programs Subtotals		0.000	9.925
C. Other Program Funding Summary (\$ in Millions)			
N/A			
Remarks			
D. Acquisition Strategy			
The District of Columbia (DC) Innovation Hub and the Las Vegas Innovation Hub are contracted under existing Air Force Research Laboratory (AFRL) Partnership Intermediary Agreements (PIAs) which have already been awarded. The DC Innovation Hub is under a PIA with Virginia Tech Applied Research Corporation and the Vegas Innovation Hub is under a PIA with DefenseWerx.			
E. Performance Metrics			
Please refer to the Performance Base Budget Overview Book for information on how Air Force resources are applied and how those resources are contributing to Air Force performance goals and most importantly, how they contribute to our mission.			

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Exhibit R-3, RDT&E Project Cost Analysis: PB 2020 Air Force												Date: February 2019			
Appropriation/Budget Activity 3600 / 4						R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>				Project (Number/Name) 646030 / <i>AFwerX</i>					
Product Development (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Las Vegas Innovation Hub	PO	DefenseWerx : Ft Walton Beach, FL	-	0.000		4.900	Jan 2019	8.300	Jan 2020	-		8.300	Continuing	Continuing	-
District of Columbia (DC) Innovation Hub	PO	VA Tech Applied Res Corp : Arlington, VA	-	0.000		4.750	Jan 2019	5.525	Jan 2020	-		5.525	Continuing	Continuing	-
Austin Innovation Hub	MIPR	Capital-Factory : Austin, TX	-	0.000		0.275	Jan 2019	0.500	Jan 2020	-		0.500	Continuing	Continuing	-
Product Development and Tools	TBD	All AFWERX locations : TBD	-	0.000		0.000		5.600	Jan 2020	-		5.600	Continuing	Continuing	-
Subtotal			-	0.000		9.925		19.925		-		19.925	Continuing	Continuing	N/A
Remarks															
The DC Innovation Hub stood up in FY 2017. The Las Vegas Innovation Hub opened in January 2018. The Austin Innovation Hub stood up in June 2018. Operating costs for these innovation hubs are funded in FY 2017 and FY 2018 with execution year funding from various Air Force Science and Technology (S&T) RDT&E program elements.															
Additional innovation hubs may be opened in FY 2019 and/or FY 2020 as directed.															
Management Services (\$ in Millions)				FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total			
Cost Category Item	Contract Method & Type	Performing Activity & Location	Prior Years	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Award Date	Cost	Cost To Complete	Total Cost	Target Value of Contract
Acquisition workforce	Allot	HQ Air Force : Arlington, VA	-	0.000		0.000		0.593	Oct 2019	-		0.593	Continuing	Continuing	-
Subtotal			-	0.000		0.000		0.593		-		0.593	Continuing	Continuing	N/A
Remarks															
Includes manpower costs for three government civilians. Prior to FY 2020 these manpower costs were funded with various Air Force S&T RDT&E program elements.															
			Prior Years	FY 2018		FY 2019		FY 2020 Base		FY 2020 OCO		FY 2020 Total	Cost To Complete	Total Cost	Target Value of Contract
Project Cost Totals			-	0.000		9.925		20.518		-		20.518	Continuing	Continuing	N/A
Remarks															

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Exhibit R-4, RDT&E Schedule Profile: PB 2020 Air Force										Date: February 2019									
Appropriation/Budget Activity										R-1 Program Element (Number/Name)									
3600 / 4										PE 0604317F / Technology Transfer									
										Project (Number/Name)									
										646030 / AFwerX									

	FY 2018				FY 2019				FY 2020				FY 2021				FY 2022				FY 2023				FY 2024			
	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
AFwerX																												
AFwerX																												

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Exhibit R-4A, RDT&E Schedule Details: PB 2020 Air Force		Date: February 2019
Appropriation/Budget Activity 3600 / 4	R-1 Program Element (Number/Name) PE 0604317F / <i>Technology Transfer</i>	Project (Number/Name) 646030 / <i>AFwerX</i>

Schedule Details

Events by Sub Project	Start		End	
	Quarter	Year	Quarter	Year
<i>AFwerX</i>				
AFwerX	1	2019	4	2024

Note
The DC Innovation Hub stood up in FY 2017. The Las Vegas Innovation Hub opened in January 2018. The Austin Innovation opened in June 2018. Operating costs for these innovation hubs are funded in FY 2017 and FY 2018 with execution year funding from various Air Force Science and Technology (S&T) RDT&E program elements.