Federal Register Notice 87 FR 31914, https://www.federalregister.gov/documents/2022/05/25/2022-11223/request-for-information-rfi-on-implementing-initial-findings-and-recommendations-of-the-national, May 25, 2022

Request for Information (RFI) on Implementing the Initial Findings and Recommendations of the National Artificial Intelligence Research Resource Task Force: Response

Joseph Wehbe

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June 29, 2022

Dr. Lynne Parker

Director, National Artificial Intelligence Initiative Office,
White House Office of Science and Technology Policy

Re: Request for Information (RFI) on Implementing Initial Findings and Recommendations of the National Artificial Intelligence Research Resource Task Force (Document Number: 2022-11223)

Submitted by:

Joseph Wehbe

"**World Economic Forum**
Recognized Artificial Intelligence
& Entrepreneurship Expert"

AI Ecosystem Builder

Joseph Wehbe is an American artificial intelligence ecosystem builder. Led the #1 winning team of a Massachusetts Institute of Technology (MIT) Challenge (knowledge-economy) in 2020. He received an AI master's degree recognized by the leading research institute in Canada in which Dr. Geoffrey Hinton (the Godfather of AI) is the Chief Scientific Advisor. Joseph is also an ambassador for Stanford Women in Data Science in Canada.

Dear Dr. Parker,

There's a demand for a generation of workers skilled in AI, and it's my mission to build that by focusing on 3 areas:

1. Operationalizing Federal, State, & Local Govt AI strategies.
2. Building a pipeline of talent & projects as a Government to Grassroots AI value network.
3. Redesigning the entry margin into AI & allowing the non-consumers of AI to participate.

I hereby submit my feedback based on 2+ years of being the class president of an Artificial Intelligence Masters program in Canada led by Dr. Geoffrey Hinton as the Chief Scientific Advisor, and as an American participating in building the Canadian AI ecosystem.

Summary of my NAIRR feedback & level setting:

1 We must define the eligibility of students & researchers who are earning an education in AI. There are only 17 AI focused Master's programs in the US. For us to be inclusive of all students we must redesign the entry barrier to AI for participants in academia, industry, research, entrepreneurship, investors, government, & practitioners. In AI, there's so much public opinion & policy, AI students themselves receive very little say about their own discipline, at the same time, we bear the burden to deliver on the potential of the future while trying to navigate through it all. Let's build an environment that gives back to students what belongs to students, and to seed a culture of learning, innovation, and research.

2 While scientific merit is important as mentioned, educational merit is required of the stakeholders accessing the NAIRR and the AI education development to build a pipeline of AI talent. To address DEIA, we must solve the AI education problem. The barrier now is "those with AI knowledge" and "those without it".

3 We must integrate an infrastructure and software layer to operationalize the NAIRR plan. According to the Global AI Index Report 2022, the US ranks 35th globally in "Operating Agreement", and ranks 17th in "Government Strategy"; this is reflected in our nation's AI strategy execution. The NAIRR plan has the ability to evolve into a Government to Grassroots AI value network for the benefit for American Federal, State, and Local Government stakeholders. We must fix this! Our low ranking in these 2 positions are the basis of all my feedback.

USA Global Index Ranking

*source: https://www.tortoisemedia.com/intelligence/global-ai/

Tortoise

Intelligence | **Global AI Index**



United States Of America

1	Talent
4	Infrastructure
35	Operating Environment
1	Research
1	Development
17	Government Strategy
1	Commercial
1	**Total Rank**

FEEDBACK 1

From NAIIR Page 2 Line 4

Going from AI to "organize their days, find the best routes to work and school, select the items they buy, and remind them of upcoming appointments"

➔ **[Response by JW]** *As a nation we should think about moving from using AI to "organize our days" to work on projects of National interest building American Dynamism in Aerospace, Defense, Education, Housing, Transportation, Public Safety, Supply Chain, Manufacturing and beyond.*

FEEDBACK 2

From NAIIR Page 1-1

The "growing divide" in computational and data resources

➔ **[Response by JW]** *The divide is created by those that "have knowledge about AI" and those that don't. There isn't a researcher or AI student in the US that has the AI formal education, proprietary data sources, AI use case knowledge AND has a barrier to start their AI journey. The growing divide is ignited by the knowledge gap. Let us build AI education capacity at the K-12 and university level and that will eliminate the growing divide.*

FEEDBACK 3

From NAIIR page 1-2 "new pathways to participation"

➔ **[Response by JW]** *We must redesign the entry margin for the underserved communities to participate. We can't lower the barrier to AI. AI education is difficult. It must be earned from a university to have educational merit. Bootcamps and certificates are not the solution to finding new pathways to participation.*

FEEDBACK 4

From NAIIR page 1-2

"american researchers to access computational and data resources"

➔ **[Response by JW]** *The definition of an American researcher must include a researcher that has an AI education, affiliated to a university in the US, part of an AI degree granting program, affiliated to an AI center of excellence, or an AI research lab. Not every American researcher has AI knowledge to execute, it's not the NAIRR's role to educate them, it's the role of the academic institution they belong to.*

FEEDBACK 5

From NAIIR page 1-3

"National AI Initiative Act of 2020", the 8-point National AI R&D Strategic Plan

➔ **[Response by JW]** *Neither mention the educational merit required of the stakeholders accessing the NAIRR or the AI education development to build a pipeline of AI talent. We must bring back educational merit to AI education and subsequently the stakeholders that benefit from NAIRR.*

FEEDBACK 6

From NAIIR page 1-3 "better understanding the national AI R&D workforce needs"

➔ **[Response by JW]** *An AI researcher in the workforce belongs to either a well resourced large scale enterprise (i.e. FAANG or similar company), a well resourced AI non-profit lab (i.e. AI Allen Institute), a venture funded startup, an SMB with limited to no AI expertise on the team, an early stage startup that is not funded nor has the scientific/AI educational merit to work on AI research.*

This group of stakeholders do NOT need access to NAIRR. This is an oversimplification of the landscape, but I argue that the focus for AI R&D workforce needs should be on building AI educational merit for stakeholders from all backgrounds that want to participate in AI.

FEEDBACK 7

From NAIIR page 1-4 & 1-5

"...required elements of the NAIRR roadmap and implementation plan"

➔ **[Response by JW]** *There is an infrastructure and software layer missing from operationalizing the plan. According to the AI Index Report 2022, the US ranks 35th globally in "Operating Agreement", and ranks 17th in "Government Strategy" and this is reflected in this report. We must build an infrastructure and software layer to operationalize the plan as a Government to Grassroots AI value network for the benefit of American Federal, State, and Local Government Stakeholders.*

FEEDBACK 8

From NAIIR page 2-1, Recommendation 2-1

"NAIRR should support early experimentation by students learning how to build and apply AI"

➔ **[Response by JW]** *We must define the eligibility of students & researchers who are earning an education in AI. There are only 17 AI focused Master's programs in the US. A computer science degree that covers AI classes is different from a student earning an AI degree. AI bootcamps and certificates don't give students practitioner level AI skills with educational merit. For us to be inclusive of all students we must redesign the entry barrier to AI for participants in academia, industry, research, entrepreneurship, investors, government, & practitioners.*

FEEDBACK 9

From NAIIR page 2-2

Increase diversity of talent- "by lowering the barriers of participation for all" regardless of "organizational affiliation"

➔ **[Response by JW]** *Means we are removing educational merit if we want security, and accountability...We must redesign the entry margin/barrier to AI not lower the barrier. Organizational affiliation in this case should mean that stakeholders belong to an AI lab, and not any American organization.*

FEEDBACK 10

From NAIIR page 2-3
Mentions "the system should take advantage of existing campus" resources...

➔ **[Response by JW]** *We don't need to add new resources, but connect existing campuses and launch AI centers of excellence.*

FEEDBACK 11

From NAIIR page 2-3 (recommendation 2-6: support needs students) point 3
Those studying who are "learning about AI, experimenting with the development of AI models and tools"

➔ **[Response by JW]** *The AI programs should be explicit, vetted, recognized by the Department of Education, and have a Chief Scientific Advisor. FYI- there are only 17 AI master's programs in the US.*

FEEDBACK 12

From NAIIR page 2-4 (Access to Startups or SMBs) have federal grants, or SBIR, or STTR

➔ **[Response by JW]** *Startups are known to offshore work, we should not grant access. The NAIRR can't control a startup's or SMB's offshore / outsourced resources.*

FEEDBACK 13

From NAIIR page 2-4 (access to Private Sector researchers with Federal funding)

➔ **[Response by JW]** *Such researchers should be affiliated to an AI center of excellence, or vetted technology hub / program to prevent bad actors. There are 68 such centers in the US. We can build an AI value network, digitally. Unlike an AI ecosystem, the proposed AI value network is a collection of upstream resources, downstream stakeholders, and subsidiary providers/services supporting a shared business model within our ecosystem. Each node adds value to the end goal of that particular AI stakeholder. This AI value network also serves the non-consumers of AI so that they have a pathway to achieve their goals.*

FEEDBACK 14

From NAIIR page 3-1 Sustainability and long term funding or revenue sources.

➔ **[Response by JW]** *By establishing the value network in each community and determining their willingness to pay, we can build several revenue streams and business models.*

FEEDBACK 15

From NAIIR page 3-2 Ownership and Administration "other options may exist"

➔ **[Response by JW]** *An infrastructure software layer to operationalize the NAIRR across all stakeholders.*

FEEDBACK 16

From NAIIR page 3-3 The day-to-day operations "employ permanent and diverse staff"

➔ **[Response by JW]** *What about qualified AI staff, managers of AI? There's no mention of such in the report. Can the NAIRR employ enough qualified staff with AI masters degrees?*

FEEDBACK 17

From NAIIR page 3-3 NAIRR management Entity "scientific merit" is mentioned

➔ **[Response by JW]** *There should be educational merit to the AI stakeholders accessing. Why should there be educational merit to healthcare/doctors but not for AI practitioners?*

FEEDBACK 18

From NAIIR page 3-4 "resource providers" not duplicate resources

➔ **[Response by JW]** *All AI programs have platform companies and resource providers seeking their attention, and offer free resources. We must include them into our value network.*

FEEDBACK 19

From NAIIR page 3-4 "addressing DEIA"

➔ **[Response by JW]** *Redesign the entry barrier to participate and increasing the number of AI masters programs and K-12 AI education addresses DEIA. We must be inclusive by increasing access to AI education at the University graduate level.*

FEEDBACK 20

From NAIIR page 3-5 "day to day" operations

➔ **[Response by JW]** *There are 8 stakeholders in an AI ecosystem, they should all have a path to contribute, not necessarily all be a user.*

FEEDBACK 21

From NAIIR page 3-5 "Governance and performance"

➔ **[Response by JW]** *The scientific advisors from the AI labs should all have a seat at the table.*

➔ *For new research proposals, there should be mechanisms for industry / manufacturing / stakeholders in the heartland and emerging frontier hubs to participate*

FEEDBACK 22

From NAIIR page 3-6 recommendation 3-11 "students, startups"

➔ **[Response by JW]** *Access should be given to those with educational merit. Connected to AI programs, labs, or other vetted stakeholder groups.*

FEEDBACK 23

From NAIIR page 3-7 recommendation 3-14 "private entities"

➔ **[Response by JW]** *The private entities should be connected to an AI lab or center of excellence in their local AI value network*

➔ *They can contribute data from industry but should be connected to AI centers of excellence at their Local or State Government levels.*

FEEDBACK 24

From NAIIR page 3-7 recommendations 3-15 "NAIRR evaluation methods"

➔ **[Response by JW]** *Each stakeholder has a different goal in AI, and the outcome / impact on each varies, the measurements should reflect such. There is an 8-stakeholder AI ecosystem model that underpins the performance.*

FEEDBACK 25

From NAIIR page 3-8 recommendation 3-16 "qualified external evaluators"

➔ **[Response by JW]** *SAME AS ABOVE*

FEEDBACK 26

From NAIIR page 3-9 recommendation 3-19 "publicly accessible platform"

➔ **[Response by JW]** *The definition of the user roles should all be enabled to AI centers of excellence, accredited AI programs, and not open to the world. A vetted AI stakeholder in the US should belong to one of these institutions. This is an oversimplification but I'm available to explain further.*

FEEDBACK 27

From NAIIR page 3-9, recommendation 3-20 "establish mechanisms" for evaluation...

➔ **[Response by JW]** *Activity based costing and balance score cards should be integrated into the oversight and transparency to inform improvements to the activities.*

FEEDBACK 28

From NAIIR page 4-1 "...user interface portal"

➔ **[Response by JW]** *There is an infrastructure and software layer missing for the NAIRR to effectively reach the grassroots. Regardless of the user interface portal, how do vetted AI stakeholders interact through the proposed "user interface portal?"*

FEEDBACK 29

From NAIIR page 4-1 "...set of resources for the AI R&D Community"

➔ **[Response by JW]** *The eligibility and definition of the AI R&D Community must follow an 8-stakeholder model and exclude startups and those not connected to AI centers of excellence. The reason for startup exclusion is mentioned in this document.*

FEEDBACK 30

From NAIIR page 4-1

"...increasing availability of data... AI-ready data, ethical, privacy, security, and usability"

➔ **[Response by JW]** *There's no mention of proprietary data, how do we manage the intellectual property for the owner, and provide assurance to the owner that data which could belong to a manufacturer that's willing to share based on their set objective (which was their reason to share it to begin with)?*

➔ *If all researchers are working on open data sets, who's working on proprietary AI projects? AI researchers must understand the context and domain of the problem they are trying to solve. Hence the 8-stakeholder AI model is required.*

FEEDBACK 31

From NAIIR page 4-1, finding 4-1

"...Rigorous AI R&D is often not possible without high-quality, trusted, dense, and transparent data resources."

➔ **[Response by JW]** *I argue that rigorous AI R&D is NOT possible without talent having the educational merit, scientific AI advisors, AI labs, and qualified team support. This component is missing from the report.*

FEEDBACK 32

From NAIIR page 4-2, Finding 4-2

"There are substantial data quality challenges within and across most research domains"

➔ **[Response by JW]** *I believe there are substantial proprietary data availability challenges within and across most research domains. AI researchers don't understand the business use cases / business value of industry, and industry does not understand the importance of the data. For example: an AI researcher seeking to solve a problem in healthcare, finance, or manufacturing in which they don't have domain expertise. We can and must fix this problem.*

FEEDBACK 33

From NAIIR page 4-2, finding 4-3

"...data curation is a substantial challenge for researchers in all domains"

➔ **[Response by JW]** *Data curation is not the responsibility of NAIRR. We must design a pathway for the private sector to contribute data via their local AI center of excellence.*

FEEDBACK 34

From NAIIR page 4-2, finding 4-4

"There are substantial costs to combining and linking heterogeneous data."

➔ **[Response by JW]** *This is not the responsibility of NAIRR nor its expertise. The concern about R&D data relating to privacy concerns can be managed via the AI centers of excellence.*

FEEDBACK 35

From NAIIR page 4-4, "Recommendation 4-5
"...incentivizing the contribution of high-quality data for AI R&D to the Federated System"
Recommendation 3-13 on page 3-7
"...incentivize contributions to the NAIRR user community or to the public good"

➔ **[Response by JW]** *Rewarding contributors of data "in kind" is beyond the scope of NAIRR. There are too many factors, and considerations to assess. Which can be explained to you at your convenience. By creating a pathway for these contributors via their local AI center of excellence, there must be educational merit to any and all activities relating to data and the proposed federated system.*

➔ *Any and all contributors should be vetted stakeholders belonging to an AI center of excellence. Otherwise, we can't control the access to sensitive data. AI is about the people, and each stakeholder has an "individual" behind it who must be vetted and with AI educational merit.*

FEEDBACK 36

From NAIIR page 4-4, recommendation 4-8
"...the NAIRR should provide high-value, core data sets to establish a value proposition and jump-start search and discovery"

➔ **[Response by JW]** *This statement is not congruent with previous statement on page 4-3 (recommendation 4-1) that the "sheer volume and variety of data of interest will make it impossible for the NAIRR to curate any of all of it"*

FEEDBACK 37

From NAIIR page 4-3, recommendation 4-1
"...data resources could be contributed by researchers, non-profit or commercial organizations, government agencies, state, local, and/or tribal government, academic institutions, and citizen scientists"

➔ **[Response by JW]** *If we treat the field of artificial intelligence with the same academic merit as healthcare, then we can identify who is a stakeholder or citizen scientist. Doctors need a medical degree to practice medicine, but they also have physician's assistants, they have nurses and other medical support specialists. Citizen scientists should belong to an academic institution, AI center of excellence, AI lab, or other vetted AI community/ecosystem. The idea is not to raise the barrier for users/stakeholders, rather the goal is to redesign the entry margin so that everything is done with educational merit.*

FEEDBACK 38

From NAIIR, page 4-5,
"Government data sets... key domains in which the Federal Government could help drive AI-based innovation are transportation, healthcare, and natural hazards research, among many others..."

➔ **[Response by JW]** *Each of these domains requires contextual understanding of the AI problem to solve with the said data set owned by the particular Federal Government agency. For example, the proposed AI center of excellence in a region can be supply chain, clean energy or healthcare etc focused to allow the connectivity of resources into the NAIRR system*

FEEDBACK 39

From NAIIR page 4-6, recommendation 4-10, "data generated by Federally funded research"

➔ **[Response by JW]** *Despite research that's been federally funded, the day to day employees or stakeholders that are involved in a project might not be American citizens in America. Many projects often outsource/offshore their work, and allowing access to such resources might compromise the integrity of the NAIRR. There are many considerations with a startup being given access that I am ready to share at the appropriate time.*

FEEDBACK 40

From NAIIR page 5-2

"Zero trust architecture presumes that no actor, system, network, or service operating outside or within the security perimeter is trusted"

➔ **[Response by JW]** *Why do we adhere to a "zero trust architecture" but do not have a "zero trust AI educated stakeholder" policy? AI is about the people, the technology and algorithms have been commoditized, without the AI educated workforce, we can't undertake cutting edge research and solve real-world problems. Access to NAIRR should be inclusive of those with AI degrees, AI formal education, and other reasons previously mentioned in this submission. We don't want to exclude anyone, at the same time, users should have the AI educational merit from vetted institutions. Let us build the next generation of AI talent so that we remain #1 with AI talent globally.*

CONCLUSION BY JOSEPH WEHBE & FURTHER CONTRIBUTION TO NAIRR

I am ready to serve my country in building the American AI ecosystem. I believe we're at an inflection point in history to execute otherwise we'll lose the AI war. The Government has given us all a platform to act now & thereby ignited a passion in me to believe that there's a call to action to build the next generation of AI talent.

Highlights of AI expertise I offer:

- The benefits of AI ecosystems are distributed unevenly across the US & don't exist in the heartland.
- Dismantle institutional, & systematic barriers that limit opportunities for stakeholders in AI & bring educational merit to the AI workforce.
- Redesign entry margin for stakeholders so the US can build a pipeline of AI talent.

I have both the educational & technical expertise to serve my country in any AI project that will keep the US as a world AI leader. "Until the mayor or superintendent in small town New Jersey understands they must introduce an AI K-12 curriculum, we have alot of work to do." -Joseph Wehbe

Your faithfully,

Joseph Wehbe
"AI Ecosystem Builder"

"The recipe is straightforward, let us invest in AI Education, AI Research & Development."-JW

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AI Ecosystem Builder