

March 7, 2018

Attn: Ted Wackler, Deputy Chief of Staff and Assistant Director
National Science and Technology Council
Committee on Technology, Subcommittee on Advanced Manufacturing
Office of Science and Technology Policy
Executive Office of the President
Eisenhower Executive Office Building
1650 Pennsylvania Avenue
Washington, District of Columbia 20504

RE: *RFI Response of ACT | The App Association regarding the National Strategic Plan for Advanced Manufacturing*

Dear Mr. Wackler:

ACT | The App Association¹ submits the following responses to the Office of Science and Technology Policy (OSTP) in response to Notice of Request for Information (RFI) on the development of National Strategic Plan for Advanced Manufacturing.²

The App Association represents more than 5,000 small business app developers and technology firms across the United States and throughout the mobile economy. Our members have developed innovative applications and products that improve workplace productivity, accelerate academic achievement, monitor health, and support the global digital economy. Today, the app ecosystem is worth more than \$143 billion³ and is a key driver of the \$8 trillion internet of things (IoT) revolution.

¹ About, ACT | The App Association. Available at: www.actonline.org.

² Notice of Request for Information on the development of National Strategic Plan for Advanced Manufacturing, 83 Fed. Reg. 51472 (Feb., 5, 2018). Available at:

³ *State of the App Economy*, ACT | The App Association 2, 5th ed. (2017). Available at: http://actonline.org/wp-content/uploads/App_Economy_Report_2017_Digital.pdf.

I. General Views of the App Association on the National Strategic Plan for Advanced Manufacturing

ACT | The App Association support efforts of the U.S. government to advance American manufacturing competitiveness, including advanced manufacturing research and development that will create jobs, grow the economy across multiple industrial sectors, strengthen national security, and improve healthcare. Representing nearly one-fifth of U.S. gross domestic product,⁴ manufacturing is a cornerstone of the U.S. economy, creating \$1.81 in value for every \$1.00 spent.⁵ While growth in the U.S. manufacturing industry has recently faced challenges, apps play an important role in the solution. We firmly believe that American manufacturing must incorporate the efficiencies offered by the app economy to remain competitive with other nations. The emergence of app-driven industrial IoT tools, which collect and analyze data gathered by sensors in real time, enables factory workers to respond immediately, preventing disruptions in production.

For example, Swisslog’s “SmartLIFT” technology creates an indoor, localized GPS network to aggregate data from sensors on forklifts and directional barcodes placed around the warehouse.⁶ Warehouse managers can access these analytics through their tablets or mobile phones to optimize productivity and receive real-time, unassailable inventory reports. Bobcat, an equipment company based in North Dakota, deployed Swisslog’s technology in its warehouses and reported a 30 percent increase in pallets per hour “with no inventory errors.”⁷

The increasing integration of apps into manufacturing directly impacts a company’s entire workforce. The ability to link inventory with sales and manufacturing in real-time streamlines production, speeds time to market, and increases competitiveness throughout the industry. As apps’ impact on the manufacturing industry grows and evolves, the United States must consider new avenues to support these improvements.

⁴ “Industry Data,” Bureau of Economic Analysis (April 19, 2017). Available at: <https://www.bea.gov/iTable/iTable.cfm?ReqID=51&step=1#reqid=51&step=51&isuri=1&5114=q&5102=15>

⁵ “Top 20 Facts About Manufacturing,” National Association of Manufacturers. Available at: <http://www.nam.org/Newsroom/Top-20-Facts-About-Manufacturing/>

⁶ “Internet of Things in Logistics,” DHL Trend Research and Cisco Consulting Services (2015). Available at: http://www.dhl.com/content/dam/Local_Images/g0/New_aboutus/innovation/DHLTrendReport_Internet_of_things.pdf

⁷ *In the Matter of Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment*, WT Docket No. 17-79, Notice of Proposed Rulemaking (2017) available at: https://apps.fcc.gov/edocs_public/attachmatch/DOC-344160A1.pdf.

The App Association urges OSTP and the National Science and Technology Council (NSTC) to ensure that the vital role of apps in advancing U.S. manufacturing be reflected in the National Strategic Plan for Advanced Manufacturing. We also encourage OSTP and NSTC to consider the increasingly important role of our members' innovations in U.S. manufacturing in dedicated short- and long-term goals. These goals should include:

- supporting public-private partnerships to advance the role of apps in U.S. manufacturing;
- securing funding and support for the development of apps in U.S. manufacturing through federally funded research and development (R&D) centers and through U.S. government tech transfer programs;
- advancing app development and computer coding as a necessary skill of the new U.S. manufacturing workforce; and
- protecting the intellectual property of American small business app makers and tech innovators.

II. Responses to Select Questions in the RFI

Based on our general views above, we provide the following answers to specific questions posed in the RFI:

- a. **Question 1:** In priority order, what should be the near-term and long-term objectives for advanced manufacturing, including R&D objectives, the anticipated time frame for achieving the objectives, and the metrics for use in assessing progress toward the objectives?

The App Association calls on NSTC and OSTP to include a short- and long-term priority in the National Strategic Plan for Advanced Manufacturing to foster partnerships between innovative software app development innovators and U.S. manufacturers. This priority should provide a basis for collaboration between and among the private sector and the U.S. government to introduce new software-based efficiencies that will preserve existing manufacturing jobs and create new ones.

In addition, we call on NSTC and OSTP to include the following priorities:

- supporting public-private partnerships to advance the role of apps in U.S. manufacturing;
- securing funding and support for the development of apps in U.S. manufacturing through federally funded R&D centers and through U.S. government tech transfer programs;
- advancing app development and computer coding as necessary skills for the new U.S. manufacturing workforce; and

- protecting the intellectual property of American small business app makers and tech innovators.

- b. **Question 2:** How can Federal agencies and federally funded R&D centers supporting advanced manufacturing R&D foster the transfer of R&D results into new manufacturing technologies and United States-based manufacturing of new products and processes for the benefit of society to ensure national, energy, and economic security? What role can public-private partnerships play, and how should they be structured for maximum impact?

Public-private partnerships can and should play a vital role in encouraging the U.S. manufacturing industry to use innovative apps. Federally funded R&D should specifically target the advancement of app usage in U.S. manufacturing processes. Our members include numerous small- and medium-sized businesses that provide new jobs and efficiencies to the U.S. manufacturing sector, and which seek to engage with manufacturers and the U.S. government to advance U.S. manufacturing. The App Association is committed to facilitating this engagement.

- c. **Question 3:** What innovative tools, platforms, technologies are needed for advances in manufacturing? Of those that already exist, what are the barriers to their adoption?

As we discuss above, many of our members provide innovative software-based products that make manufacturing processes more efficient. While some of our members have developed, or are developing, innovative software tailored to improving U.S. manufacturing processes, they face financial barriers when they try to partner with U.S. manufacturers and access the necessary capital to rapidly scale their innovative products. We believe the National Strategic Plan for Advanced Manufacturing should prioritize the development of incentives to incorporate new software-based innovations into U.S. manufacturing processes in the short and long term.

- d. **Question 4:** How can such Federal agencies and centers develop and strengthen all levels of manufacturing education and training programs to ensure an adequate, well-trained U.S. workforce for the new advanced manufacturing jobs of the future?

To effectively use innovative app-based solutions to improve U.S. manufacturing, American manufacturers need access to a skilled talent pool. To build this talent pool, the United States must fund educational curriculum, from primary to post-secondary, to address the shortage of American computer science professionals. At present, more than 500,000 computing jobs are unfilled, and by 2024, there will be more than 1 million unfilled computing jobs.⁸ Further, only 40 percent of K-12 schools teach computer science, leaving roughly two-thirds of American students ill-equipped to enter the modern workforce.⁹

The National Strategic Plan for Advanced Manufacturing should encourage the Department of Education to consider replicating successful state-level public-private initiatives like Massachusetts's 2015 House Bill 3650. This legislation allotted \$1.7 million for computer science education by matching every \$1 spent by the commonwealth with \$1 from private sources.¹⁰ Massachusetts's plan to expand computer science education spans the education continuum, beginning with "a school district-based program to help teachers and administrators implement new computer science courses" and continuing through the department of higher education, "to create computer science professional development hubs at universities in each of the regional STEM networks."¹¹

⁸ *State of the App Economy*, ACT| The App Association 2, 5th ed. (2017). Available at: http://actonline.org/wp-content/uploads/App_Economy_Report_2017_Digital.pdf.

⁹ *Id.*

¹⁰ Jennifer Dounay Zinth, *Public-Private Partnerships – A "Match" Made in Heaven?*, Education Commission of the States (Nov. 16, 20106). Available at: <https://www.ecs.org/public-private-partnerships-a-match-made-in-heaven/>.

¹¹ *Id.*

- e. **Question 5:** How can such Federal agencies and centers assist small and medium-sized manufacturers in developing and implementing new products and processes?

Our members' software innovations offer incredible efficiencies that can help U.S. manufacturers grow and create American jobs. Small and medium-sized manufacturers generally do not have the resources as larger manufacturers, and they would benefit greatly. We urge the National Strategic Plan for Advanced Manufacturing to recommend efforts to advance the incorporation of software-based efficiencies into the manufacturing processes of small and medium-sized businesses, and commit to work with the U.S. government and other stakeholders to advance this priority.

- f. **Question 6:** How would you assess the state of the following factors and how they impact innovation and competitiveness for United States advanced manufacturing?

The Capabilities of the Domestic Manufacturing Workforce:

To improve U.S. manufacturing with innovative app-based solutions, American manufacturers need access to a skilled talent pool. We urge the National Strategic Plan for Advanced Manufacturing consider the necessary skills of the U.S. manufacturing workforce consistent with our input to the administration on the development of a national cybersecurity workforce¹² and our answer to Question 4 above.

¹² Letter to White House regarding encryption, ACT | The App Association and coalition (May 19, 2015). Available at: <http://actonline.org/wp-content/uploads/2015/05/Encryption-Letter-to-White-House-05-19-15.pdf>.

Export Opportunities and Trade Policies:

While the U.S. government recently has made notable efforts¹³ to address foreign digital trade barriers that affect American companies' ability to grow their digital presence, reach new markets, and create U.S. jobs, we must do more work to increase competitiveness for U.S. manufacturing and manufacturing-related companies. Specific trade barriers of high concern include data localization policies, the imposition of customs duties on digital content, and onerous market entry requirements like providing a backdoor to encryption keys or transferring source code or trade secrets. We have written extensively and testified publicly on digital trade barriers and the damage they cause to U.S. industry and small business innovators.¹⁴ We incorporate our publicly-expressed views on digital trade policies into this comment and urge the NSTC and OSTP to include this important topic in the National Strategic Plan for Advanced Manufacturing. The App Association is committed to creating an international environment where digital trade policies support the growth of U.S. manufacturing and manufacturing innovators.

Financing, Investment, and Taxation Policies and Practices:

We urge the National Strategic Plan for Advanced Manufacturing to reduce financing, investment, and taxation-related barriers that hinder the advancement of U.S. manufacturing. The App Association specifically recommends reforms that would make taxes more user-friendly for small businesses. For example, the Preserving Taxpayers' Rights Act (H.R. 3220) is a key priority of the Coalition for Effective and Efficient Tax Administration (CEETA)¹⁵ and would preserve taxpayer rights to transparency and fair review during audits. We have urged Congress to advance the bill as soon as practicable.

Federal Regulations:

We urge the National Strategic Plan for Advanced Manufacturing to make reducing regulatory burdens for U.S. manufacturing a priority. The App Association believes it would be worthwhile to create a dedicated review effort that would include key private sector representatives including the small business software and tech community the App Association represents.

¹³ E.g., Testimony to the United States Trade Representative on Negotiating Objectives Regarding Modernizing of the North American Free Trade Agreement with Canada and Mexico, ACT | The App Association (Jun. 27 2017). Available at: https://actonline.org/wp-content/uploads/ACT-The-App-Association_NAFTA-Modernization-Testimony-1.pdf.

¹⁴ E.g., *Input of ACT | The App Association regarding the U.S. Trade Representative's Request for Comments and Notice of Public Hearing Concerning its 2018 Special 301 Review [USTR-2017-0024]*, ACT | The App Association (Feb. 8, 2018). Available at: http://actonline.org/wp-content/uploads/020618_App-Assn-Comments-USTR-re-301_Review-final.pdf.

¹⁵ Legislation Introduced to Improve IRS Audits and Exams, Coalition for Efficient & Effective Tax Administration. Available at: <http://www.eetax.org/index.php>.

III. Conclusion

The App Association appreciates the opportunity to submit the following views and hopes OSTP strongly considers them as this proceeding moves forward.

Sincerely,

A handwritten signature in black ink, appearing to read "B. Scarpelli", written in a cursive style.

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