

114TH CONGRESS  
1ST SESSION

# H. R. 2886

To direct the Secretary of Transportation to establish an Automated and Connected Vehicle Research Initiative, and for other purposes.

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## IN THE HOUSE OF REPRESENTATIVES

JUNE 25, 2015

Mr. LIPINSKI introduced the following bill; which was referred to the Committee on Science, Space, and Technology, and in addition to the Committee on Transportation and Infrastructure, for a period to be subsequently determined by the Speaker, in each case for consideration of such provisions as fall within the jurisdiction of the committee concerned

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## A BILL

To direct the Secretary of Transportation to establish an Automated and Connected Vehicle Research Initiative, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*  
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Future Transportation  
5 Research and Innovation for Prosperity Act” or the “Fu-  
6 ture TRIP Act”.

1 **SEC. 2. AUTOMATED AND CONNECTED VEHICLE RESEARCH**  
2 **INITIATIVE.**

3 (a) IN GENERAL.—The Secretary of Transportation  
4 shall establish an Automated and Connected Vehicle Re-  
5 search Initiative to lay the foundation for the broad scale  
6 adoption of automated vehicle technology.

7 (b) CONSULTATION.—In carrying out the Initiative  
8 established under subsection (a), the Secretary shall con-  
9 sult with—

10 (1) the National Highway Traffic Safety Ad-  
11 ministration;

12 (2) the Federal Highway Administration;

13 (3) the Federal Transit Administration;

14 (4) the Federal Motor Carrier Safety Adminis-  
15 tration;

16 (5) the Federal Railroad Administration;

17 (6) the Department of Energy;

18 (7) the National Institute of Standards and  
19 Technology;

20 (8) the National Science Foundation;

21 (9) the Office of Science and Technology Policy  
22 of the White House; and

23 (10) other relevant agencies.

24 (c) RESPONSIBILITIES.—In carrying out the Initia-  
25 tive under subsection (a), the Secretary shall—

1           (1) conduct collaborative research with private  
2 industry and industry associations, other Federal  
3 agencies, State and local agencies, university re-  
4 search centers, a national transportation center se-  
5 lected under Section 5505(c)(2) of title 49, United  
6 States Code, and national labs; and

7           (2) establish automated and connected vehicle  
8 technology corridors and related pilot programs.

9           (d) RESEARCH AGENDA.—The Secretary, in con-  
10 sultation with interested parties, shall establish a research  
11 agenda for the research conducted under subsection (c)(1)  
12 and programs under subsection (c)(2) that, at a minimum,  
13 include—

14           (1) quantifying the benefits of advanced safety  
15 and vehicle connectivity technologies, including vehi-  
16 cle-to-vehicle communication technologies and vehi-  
17 cle-to-infrastructure communication technologies, ad-  
18 vanced driver assistance systems, shared-use serv-  
19 ices, and other connected and automated vehicle  
20 technologies and services, on—

21           (A) transportation system performance  
22 categories including highway fatalities and inju-  
23 ries separately for motorized and for non-  
24 motorized modes;

25           (B) traffic congestion;

- 1 (C) freight movement;
- 2 (D) fuel economy and harmful emissions;
- 3 and
- 4 (E) vehicle miles traveled; and
- 5 (2) providing deployment guidance, including
- 6 for—
- 7 (A) the reduction of pedestrian, bicycle,
- 8 and motorcycle fatalities and injuries;
- 9 (B) considerations for existing Federal,
- 10 State, and local regulations and legal frame-
- 11 works;
- 12 (C) information technology systems and
- 13 management, including the sharing of public
- 14 agency traffic information, work zone informa-
- 15 tion, and other transportation data to stimulate
- 16 innovative new services and products for en-
- 17 hancing safety, fuel efficiency, and quality of
- 18 life;
- 19 (D) funding mechanisms and business
- 20 models;
- 21 (E) mobility for the elderly, disabled, and
- 22 economically disadvantaged;
- 23 (F) transit systems;
- 24 (G) cyber-physical security;
- 25 (H) human factors; and

1 (I) intercity and interjurisdictional applica-  
2 tions and challenges.

3 (e) COORDINATION OF RESEARCH.—In conducting  
4 the research under subsection (c)(1), the Secretary shall  
5 coordinate with representatives from the Federal Commu-  
6 nications Commission, the Alliance of Automobile Manu-  
7 facturers, and the Intelligent Transportation Society of  
8 America regarding viable spectrum-sharing technologies  
9 that could enable the safe operation of unlicensed devices  
10 in the 5850–5925 MHz band (in this section, referred to  
11 as the 5.9 GHz band) without interfering with safety-of-  
12 life vehicle-to-vehicle communication technologies and ve-  
13 hicle-to-infrastructure communication technologies.

14 (f) REPORT.—Not later than 1 year after the enact-  
15 ment of this Act, the Secretary shall issue a public report  
16 identifying any potential signal interference risks that may  
17 exist between unlicensed Wi-Fi devices operating in the  
18 5.9 GHz band.

19 (g) LETTER.—Not later than 1 year after the enact-  
20 ment of this Act, the Secretary shall send a letter to the  
21 Federal Communications Commission, the Committee on  
22 Environment and Public Works of the Senate, the Com-  
23 mittee on Commerce, Science, and Transportation of the  
24 Senate, the Committee on Transportation and Infrastruc-  
25 ture of the House of Representatives, and the Committee

1 on Energy and Commerce of the House of Representatives  
2 that contains an explanation of the risks and a determina-  
3 tion on whether unlicensed Wi-Fi devices can safely oper-  
4 ate in the 5.9 GHz band without creating signal interfere  
5 that could jeopardize or delay the deployment of an effec-  
6 tive and reliable vehicle-to-vehicle and vehicle-to-infra-  
7 structure safety-of-life communications system.

8 (h) INTELLIGENT TRANSPORTATION SYSTEMS  
9 SCIENCE & TECHNOLOGY CENTER.—The Secretary shall  
10 establish a competitively selected Intelligent Transpor-  
11 tation Systems Science & Technology Center that—

12 (1) draws on the expertise of researchers from  
13 multiple domains to develop intelligent systems capa-  
14 ble of perceiving and physically interacting with  
15 their environment;

16 (2) develops methods for extending operator ef-  
17 ficiency and safety through machine interaction;

18 (3) trains the next generation of the transpor-  
19 tation workforce in the cross-disciplinary fields of ro-  
20 botics, machine learning, cybersecurity, and engi-  
21 neering;

22 (4) expands standards, codes, and processes to  
23 leverage a new generation of intelligent machines;  
24 and

1           (5) engages in real-world technology deploy-  
2           ments and evaluations.

3           (i) REPORT.—Not later than 2 years after the date  
4 of enactment of this Act, the Secretary shall submit to  
5 the Committee on Commerce, Science, and Transportation  
6 and the Committee on Environment and Public Works of  
7 the Senate and the Committee on Transportation and In-  
8 frastructure, the Committee on Energy and Commerce,  
9 and the Committee on Science, Space, and Technology of  
10 the House of Representatives, and make available on the  
11 Internet website of the Department of Transportation, a  
12 report that—

13           (1) assesses the organizational readiness of the  
14           Department to address connected and automated ve-  
15           hicle technology challenges;

16           (2) assesses the status of connected and auto-  
17           mated transportation technology, applications, and  
18           policies developed by public and private entities in  
19           the United States and internationally;

20           (3) defines recommended implementation paths  
21           for connected and automated transportation tech-  
22           nology, applications, and policies that are based on  
23           the analysis described in paragraph (1), and the re-  
24           sults of paragraphs (1) through (3); and

1           (4) includes guidance on the relationship of the  
2           proposed deployment of connected and automated  
3           vehicles to the national architecture and standards  
4           and protocols required under section 517 of title 23,  
5           United States Code, that—

6                   (A) is based on cyber-physical security and  
7                   privacy; and

8                   (B) examines the interaction with other  
9                   cyber-physical systems.

10          (j) COORDINATION.—In carrying out this section, the  
11          Secretary may enter into agreements with, and seek input  
12          from, the National Research Council, the National Insti-  
13          tute of Standards and Technology, the National Science  
14          Foundation, and the Department of Energy, and shall  
15          seek input from ITS America, the American Association  
16          of State Highway and Transportation Officials, and indus-  
17          try stakeholders, including nonprofit advocacy groups.

18          (k) REPORT REVIEW.—The Secretary may enter into  
19          agreements with the National Research Council for the re-  
20          view of the report described in subsection (i).

21          (l) DEFINITIONS.—In this section:

22                   (1) VEHICLE-TO-VEHICLE COMMUNICATION  
23                   TECHNOLOGY.—The term “vehicle-to-vehicle commu-  
24                   nication technology” means a technology that allows

1 wireless communication of data between vehicles, in-  
2 cluding dedicated short range communication.

3 (2) VEHICLE-TO-INFRASTRUCTURE COMMUNICA-  
4 TION TECHNOLOGY.—The term “vehicle-to-infra-  
5 structure communication technology” means a tech-  
6 nology that allows wireless communication of data  
7 between vehicles and infrastructure, including dedi-  
8 cated short range communication.

9 (3) ADVANCED DRIVER ASSISTANCE SYSTEM.—  
10 The term “advanced driver assistance system”  
11 means a system developed to automate, adapt, or en-  
12 hance vehicle systems for safer driving and improved  
13 functionality.

14 (4) SHARED-USE SERVICE.—The term “shared-  
15 use service” means a service that shares transpor-  
16 tation resources between users.

17 **SEC. 3. UNIVERSITY TRANSPORTATION CENTERS PRO-**  
18 **GRAM.**

19 Section 5505 of title 49, United States Code, is  
20 amended—

21 (1) in subsection (a)(2)(B) by inserting  
22 “multimodal” before “transportation knowledge”;  
23 and

24 (2) in subsection (b)—

1 (A) by striking paragraph (2) and insert-  
2 ing the following:

3 “(2) RESTRICTION.—

4 “(A) LIMITATION.—A nonprofit institution  
5 of higher education or the lead institution of a  
6 consortium of nonprofit institutions of higher  
7 education, as applicable, may only submit one  
8 grant application per fiscal year for each of the  
9 transportation centers described under para-  
10 graphs (2), (3), and (4) of subsection (c).

11 “(B) EXCEPTION FOR CONSORTIUM MEM-  
12 BERS THAT ARE NOT LEAD INSTITUTIONS.—  
13 Subparagraph (A) shall not apply to a non-  
14 profit institution of higher education that is a  
15 member of a consortium of nonprofit institu-  
16 tions of higher education but not the lead insti-  
17 tution of such consortium.”; and

18 (B) in paragraph (4)(B)(iii) by inserting  
19 “multimodal” before “transportation prob-  
20 lems”; and

21 (3) in subsection (c)(4) by striking subpara-  
22 graph (B) and redesignating accordingly.

1 **SEC. 4. OFFICE OF SCIENCE AND TECHNOLOGY POLICY**  
2 **WORKING GROUP.**

3 The Director of the Office of Science and Technology  
4 Policy shall, to improve the scientific pursuit and research  
5 procedures of the Department of Transportation—

6 (1) convene an interagency working group to  
7 assist the Department of Transportation in—

8 (A) implementing appropriate protocols for  
9 the management of research programs;

10 (B) developing and implementing effective  
11 technology transfer methods;

12 (C) effectively operating intermural re-  
13 search programs, including university transpor-  
14 tation centers;

15 (D) implementing a strategic research and  
16 development plan and national research frame-  
17 work; and

18 (E) identifying appropriate research prior-  
19 ities;

20 (2) develop procedures to allow the Secretary of  
21 Transportation to solicit the support of and identify  
22 opportunities to collaborate with other Federal re-  
23 search agencies, national laboratories, and personnel  
24 to assist in the effective and efficient pursuit and  
25 resolution of research challenges identified by the  
26 Secretary; and

1           (3) submit to Congress, not later than 15  
2 months after the date of enactment of this Act, a re-  
3 port about the effectiveness, adherence to standards  
4 and protocols, interagency collaboration, and areas  
5 of improvement of Department of Transportation  
6 and Governmentwide research on transportation-ori-  
7 ented needs.

8 **SEC. 5. RESEARCH AND TECHNOLOGY DEVELOPMENT AND**  
9 **DEPLOYMENT AMENDMENTS.**

10       (a) ACCELERATED INNOVATION DEPLOYMENT.—  
11 Section 503(c)(2)(B) of title 23, United States Code, is  
12 amended—

13           (1) by striking clause (i) and inserting the fol-  
14 lowing:

15                   “(i) establish and carry out dem-  
16 onstration programs and workshops to pro-  
17 mote innovations and convene strategic  
18 groups of individuals influential in innova-  
19 tion adoption processes;”;

20           (2) in clause (ii) by striking “and” at the end;

21           (3) in clause (iii) by striking the period at the  
22 end and inserting “; and”; and

23           (4) by adding at the end the following:

24                   “(iv) provide assistance in establishing  
25 regional, State, and local technology needs,

1           such as through frameworks developed in  
2           the National Cooperative Highway Re-  
3           search Program Report 750.”.

4           (b) REAUTHORIZATION OF TECHNOLOGY AND INNO-  
5           VATION DEPLOYMENT PROGRAM.—Section 503(c)(3)(C)  
6           of title 23, United States Code, is amended by striking  
7           “2013 through 2014” and inserting “2016 through  
8           2021”.

9           **SEC. 6. STATE PLANNING AND RESEARCH ADDITIONAL**  
10           **PURPOSES.**

11           Section 505(a) of title 23, United States Code, is  
12           amended by adding at the end the following:

13           “(8) Travel for research and technology pur-  
14           poses, including workshops, conferences, and dem-  
15           onstrations.

16           “(9) Activities and training related to devel-  
17           oping a culture of innovation and improving organi-  
18           zational readiness for adoption of innovative tech-  
19           nologies, such as award programs recognizing inno-  
20           vative individuals.”.

21           **SEC. 7. BUREAU OF TRANSPORTATION STATISTICS.**

22           (a) TRAVEL DATA INITIATIVE.—The Director of the  
23           Bureau of Transportation Statistics shall establish a Trav-  
24           el Data Initiative to expand the existing collection of pas-

1 senger travel data by addressing the most critical gaps in  
2 our knowledge and understanding of passenger travel.

3 (b) ADVICE.—To identify critical gaps in knowledge  
4 and data collection approaches, the Director shall seek ad-  
5 vice from—

6 (1) Department of Transportation advisory  
7 committees;

8 (2) the Advisory Committee on Supply Chain  
9 Competitiveness of the Department of Commerce;  
10 and

11 (3) the Transportation Research Board of the  
12 National Academies.

13 (c) PILOT PROGRAM.—

14 (1) ESTABLISHMENT.—The Director, in coordi-  
15 nation with the Office of Freight Management and  
16 Operations of the Federal Highway Administration,  
17 shall establish a pilot program to evaluate freight  
18 fluidity measures.

19 (2) GOALS.—In carrying out the program, the  
20 Director shall—

21 (A) collect, analyze, and present freight  
22 data in a timely and comprehensive manner;

23 (B) establish reporting methods that work  
24 between States and internationally; and

1           (C) present data with the greatest level of  
2           geographic detail that do not compromise con-  
3           fidentiality or statistical reliability.

4           (3) STAKEHOLDER ENGAGEMENT.—The Direc-  
5           tor, in coordination with the Department of Com-  
6           merce and the freight industry, shall define require-  
7           ments for the pilot program.

8           (d) ADDITIONAL AUTHORITY.—Section 6302 of title  
9           49, United States Code, is amended by adding at the end  
10          the following:

11          “(d) DECISIONMAKING AUTHORITY.—To ensure on-  
12          going objectivity of the products of the Director, the Di-  
13          rector has sole decisionmaking authority in the collection,  
14          analysis, and publication of data and statistics for the Bu-  
15          reau to fulfill the purposes of this section, in accordance  
16          with Statistical Policy Directive #1 and Statistical Policy  
17          Directive #4 of the Office of Management and Budget.

18          “(e) BUDGET ALLOCATION AUTHORITY.—The Direc-  
19          tor shall have final authority for the disposition and allo-  
20          cation of the authorized budget of the Bureau to enable  
21          fulfillment of the purposes of this section, including all hir-  
22          ing, grants, cooperative agreements, and contracts award-  
23          ed by the Bureau, including the disposition and allocation  
24          of funds paid to the Bureau for cost-reimbursable projects.



1 **“SEC. 509. NATIONAL COOPERATIVE FREIGHT TRANSPOR-**  
2 **TATION RESEARCH PROGRAM.**

3 “(a) ESTABLISHMENT.—The Secretary shall estab-  
4 lish and support a national cooperative freight transpor-  
5 tation research program.

6 “(b) AGREEMENT.—The Secretary shall enter into an  
7 agreement with the Transportation Research Board of the  
8 National Research Council of the National Academies to  
9 support and carry out administrative and management ac-  
10 tivities relating to the governance of the national coopera-  
11 tive freight transportation research program.

12 “(c) ADVISORY COMMITTEE.—The National Acad-  
13 emies shall select an advisory committee consisting of a  
14 representative cross-section of freight stakeholders, includ-  
15 ing the Department of Transportation, other Federal  
16 agencies, State transportation departments, local govern-  
17 ments, nonprofit entities, academia, the private sector,  
18 nonprofit entities, trade associations, transportation coali-  
19 tions, and other interested parties.

20 “(d) GOVERNANCE.—The national cooperative  
21 freight transportation research program established under  
22 this section shall include the following administrative and  
23 management elements:

24 “(1) NATIONAL RESEARCH AGENDA.—The advi-  
25 sory committee, in consultation with interested par-

1 ties, shall recommend a national research agenda for  
2 the program. The agenda shall—

3 “(A) include an emphasis on the safe and  
4 efficient transportation and handling of haz-  
5 ardous materials by all modes of transportation;

6 “(B) include a multiyear strategic plan,  
7 recognizing freight research themes and needs  
8 identified by the National Freight Advisory  
9 Committee established to implement the freight  
10 transportation requirements of the MAP-21  
11 and needs identified by the Advisory Committee  
12 on Supply Chain Competitiveness of the De-  
13 partment of Commerce;

14 “(C) be coordinated with the activities,  
15 plans, and reports required by sections 5304  
16 and 5305 of title 49, United States Code; and

17 “(D) be coordinated with the activities,  
18 plans, and reports required by section 508 of  
19 title 23, United States Code.

20 “(2) INVOLVEMENT.—Interested parties may—

21 “(A) submit research proposals to the advi-  
22 sory committee;

23 “(B) participate in merit reviews of re-  
24 search proposals and peer reviews of research  
25 products; and

1                   “(C) receive research results.

2                   “(3) OPEN COMPETITION AND PEER REVIEW OF  
3 RESEARCH PROPOSALS.—The National Academies  
4 may award research contracts and grants under the  
5 program through open competition and merit review  
6 conducted on a regular basis.

7                   “(4) RESEARCH COORDINATION.—The National  
8 Academies shall ensure that research contracts and  
9 grants awarded under this section are not dupli-  
10 cative with research conducted under other cooperative  
11 transportation research programs governed by the  
12 National Academies, nor with research conducted by  
13 the Department of Transportation or any other Fed-  
14 eral, State, or local agency.

15                   “(5) EVALUATION OF RESEARCH.—

16                   “(A) PEER REVIEW.—Research contracts  
17 and grants under the program may allow peer  
18 review of the research results.

19                   “(B) PROGRAMMATIC EVALUATIONS.—The  
20 National Academies may conduct periodic pro-  
21 grammatic evaluations on a regular basis of re-  
22 search contracts and grants.

23                   “(6) DISSEMINATION OF RESEARCH FIND-  
24 INGS.—The National Academies shall disseminate  
25 research findings to researchers, practitioners, and

1 decisionmakers, through conferences and seminars,  
2 field demonstrations, workshops, training programs,  
3 presentations, testimony to government officials, the  
4 Internet, publications for the general public, collabo-  
5 ration with the National Transportation Library,  
6 and other appropriate means.

7 “(e) CONTENTS.—The national research agenda re-  
8 quired under subsection (d)(1) shall at a minimum include  
9 research in the following areas:

10 “(1) Techniques for measuring, estimating, and  
11 quantifying public benefits derived from freight  
12 transportation projects.

13 “(2) Alternative approaches to calculating the  
14 contribution of truck and rail traffic to congestion  
15 on specific highway segments.

16 “(3) The feasibility of consolidating origins and  
17 destinations for freight movement.

18 “(4) Methods for incorporating estimates of do-  
19 mestic and international trade entering via all mode  
20 points of entry into landside transportation plan-  
21 ning.

22 “(5) The use of technology applications, includ-  
23 ing to intelligent transportation systems applica-  
24 tions, to increase capacity of highway lanes dedi-  
25 cated to truck-only traffic.

1           “(6) Development of physical and policy alter-  
2 natives for separating car and truck traffic.

3           “(7) Means of synchronizing infrastructure im-  
4 provement projects with freight transportation de-  
5 mand projections.

6           “(8) The effect of changing patterns of freight  
7 movement on transportation planning decisions, in-  
8 cluding accessible private and public commercial ve-  
9 hicle parking and truck-rail crossings.

10          “(9) Methods for collecting and sharing robust  
11 and timely freight data by all modes to inform  
12 transportation planning and operations at the local,  
13 regional and State levels.

14          “(10) Methods to gain local acceptance of  
15 freight development, expansion and growth along ex-  
16 isting corridors, terminals and ports.

17          “(11) Workforce development programs to at-  
18 tract more students and the next generation of  
19 workers to transportation planning, engineering and  
20 operation carriers to improve freight mobility.

21          “(12) Collaboration across multiple jurisdictions  
22 and between public and private sector funding part-  
23 ners to develop, maintain and invest in transpor-  
24 tation improvements.

1           “(13) Impact of the development and transport  
2 of new sources of energy on the freight network ca-  
3 pacity and performance, as well as the potential for  
4 synergistic development of new transportation infra-  
5 structure with distribution of energy.

6           “(14) Funding and financing alternatives for  
7 multimodal freight infrastructure development, as  
8 well as the cost of inaction on infrastructure needs  
9 to system users.

10           “(15) Other research areas to identify and ad-  
11 dress emerging and future research needs related to  
12 freight transportation by all modes.

13           “(f) FUNDING.—

14           “(1) FEDERAL SHARE.—The Federal share of  
15 the cost of an activity carried out under this section  
16 shall be up to 100 percent.

17           “(2) USE OF NON-FEDERAL FUNDS.—In addi-  
18 tion to using funds authorized for this section, the  
19 National Academies may seek and accept additional  
20 funding sources from public and private entities ca-  
21 pable of accepting funding from the Department of  
22 Transportation, States, local governments, nonprofit  
23 foundations, and the private sector.



1           “(1) the activities at the test ranges established  
2           under section 332 of the FAA Modernization and  
3           Reform Act of 2012 (49 U.S.C. 40101 note); and

4           “(2) the Center of Excellence for Unmanned  
5           Aerial Systems of the Federal Aviation Administra-  
6           tion.”; and

7           (4) in subsection (d) by striking “2006 through  
8           2009” and inserting “2016 through 2021”.

9   **SEC. 10. TRANSPORTATION RESEARCH AND DEVELOPMENT**

10                           **STRATEGIC PLANNING.**

11           Section 508(a) of title 23, United States Code, is  
12   amended—

13           (1) in paragraph (1) by striking “the Transpor-  
14           tation Research and Innovative Technology Act of  
15           2012” and inserting “the Future TRIP Act”; and

16           (2) in paragraph (3)—

17                   (A) in subparagraph (B) by striking “and”  
18                   at the end;

19                   (B) in subparagraph (C) by striking the  
20                   period at the end and inserting a semicolon;  
21                   and

22                   (C) by adding at the end the following:

23                           “(D) provides an outcome-based assess-  
24                           ment of previous strategic plans;

1           “(E) includes a description of current,  
2           planned, and strategic future collaborations  
3           within the Department, with other Federal  
4           agencies, and with international entities; and

5           “(F) includes an evaluation of the value of  
6           research, development, and technology to the  
7           nation and the Department’s strategic goals.”.

8 **SEC. 11. CENTERS FOR SURFACE TRANSPORTATION EXCEL-**  
9 **LENCE.**

10         Section 504(h) of title 23, United States Code, is  
11 amended—

12           (1) in paragraph (1) by striking “The Sec-  
13           retary” and inserting “Not later than 6 months  
14           after the date of enactment of the Future TRIP Act,  
15           the Secretary”; and

16           (2) in paragraph (2) by striking “and project fi-  
17           nance” and inserting “project finance, and intel-  
18           ligent transportation systems”.

○