AMENDMENT IN THE NATURE OF A SUBSTITUTE TO H.R. 2886

OFFERED BY MR. LIPINSKI OF ILLINOIS

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE. 2 This Act may be cited as the "Future Transportation Research and Innovation for Prosperity Act" or the "Future TRIP Act". SEC. 2. AUTOMATED AND CONNECTED VEHICLE RESEARCH 6 INITIATIVE. 7 (a) IN GENERAL.—The Secretary of Transportation shall establish an Automated and Connected Vehicle Re-8 search Initiative to lay the foundation for the broad scale adoption of automated vehicle technology. 10 11 (b) Consultation.—In carrying out the Initiative 12 established under subsection (a), the Secretary shall con-13 sult with— 14 (1) the Department of Energy; 15 (2) the National Institute of Standards and

(3) the National Science Foundation;

16

17

Technology;

1	(4) the Office of Science and Technology Policy
2	of the White House; and
3	(5) other relevant agencies.
4	(c) Responsibilities.—In carrying out the Initia-
5	tive established under subsection (a), the Secretary shall—
6	(1) support and conduct research and develop-
7	ment on automated and connected vehicle tech-
8	nologies with private industry and industry associa-
9	tions, other Federal agencies, State and local agen-
10	cies, university research centers, a national transpor-
11	tation center selected under section $5505(c)(2)$ of
12	title 49, United States Code, and national labora-
13	tories; and
14	(2) support or establish automated and con-
15	nected vehicle technology corridors and related pilot
16	programs.
17	(d) RESEARCH AND DEVELOPMENT AGENDA.—The
18	Secretary, in consultation with interested parties, shall es-
19	tablish an agenda for the research and development con-
20	ducted under subsection (e)(1) and the programs de-
21	scribed in subsection (c)(2) that, at a minimum, include—
22	(1) analyzing and modeling the benefits of ad-
23	vanced safety and vehicle connectivity technologies,
24	including vehicle-to-vehicle communication tech-
25	nologies and vehicle-to-infrastructure communication

1	technologies, advanced driver assistance systems,
2	shared-use services, and other connected and auto-
3	mated vehicle technologies and services, on—
4	(A) transportation system performance
5	categories including highway fatalities and inju-
6	ries separately for motorized and for non-
7	motorized modes;
8	(B) traffic congestion;
9	(C) freight movement;
10	(D) fuel economy and harmful emissions;
11	and
12	(E) vehicle miles traveled; and
13	(2) providing deployment guidance, including
14	for—
15	(A) the reduction of pedestrian, bicycle,
16	and motorcycle fatalities and injuries;
17	(B) considerations for existing Federal,
18	State, and local regulations and legal frame-
19	works, including standardization of vehicle and
20	operator certification, distracted driving regula-
21	tions, and following distance regulations;
22	(C) information technology systems and
23	management, including the sharing of public
24	agency traffic information, work zone informa-
25	tion, and other transportation data to stimulate

1	innovative new services and products for en-
2	hancing safety, fuel efficiency, and quality of
3	life;
4	(D) funding considerations, including im-
5	pacts on Federal, State, and local revenue, and
6	funding mechanisms and agreements that ben-
7	efit Federal, State, and local agencies;
8	(E) efficacy and other issues regarding
9	adoption incentives, including access to man-
10	aged lanes, changes to the New Car Assessment
11	Program, tax incentives, and changes to Cor-
12	porate Average Fuel Economy standards;
13	(F) mobility for the elderly, disabled, and
14	economically disadvantaged;
15	(G) transit systems;
16	(H) cyber-physical security;
17	(I) human factors; and
18	(J) intercity and interjurisdictional appli-
19	cations and challenges.
20	(e) Coordination of Research and Develop-
21	MENT.—In conducting the research and development
22	under subsection (c)(1), the Secretary shall coordinate
23	with representatives from the Federal Communications
24	Commission, and private sector stakeholders, including in-
25	dustry and nonprofit advocacy groups, regarding viable

1	spectrum-sharing technologies that could enable the safe
2	operation of unlicensed devices in the 5850–5925 MHz
3	band (in this section, referred to as the 5.9 GHz band)
4	without interfering with safety-of-life vehicle-to-vehicle
5	communication technologies and vehicle-to-infrastructure
6	communication technologies.
7	(f) Signal Interference Report.—
8	(1) REQUIREMENT.—The Secretary, in coordi-
9	nation with representatives from the Federal Com-
10	munications Commission and private sector stake-
11	holders, including industry and nonprofit advocacy
12	groups, shall issue a public report identifying any
13	potential signal interference risks to operation of a
14	licensed dedicated short-range communication device
15	from unlicensed Wi-Fi devices operating in the 5.9
16	GHz band.
17	(2) Timing.—The report required under para-
18	graph (1) shall be issued not later than the later
19	of—
20	(A) 1 year after the date of enactment of
21	this Act; or
22	(B) 1 year after a licensed dedicated short-
23	range communication device that meets Depart-
24	ment of Transportation specifications is pre-
25	sented to the Department.

1	(g) Intelligent Transportation Systems
2	SCIENCE & TECHNOLOGY CENTER.—The Secretary shall
3	establish a competitively selected Intelligent Transpor-
4	tation Systems Science & Technology Center that—
5	(1) draws on the expertise of researchers from
6	multiple domains to develop intelligent systems capa-
7	ble of perceiving and physically interacting with
8	their environment;
9	(2) develops methods for extending operator ef-
10	ficiency and safety through machine interaction;
11	(3) trains the next generation of the transpor-
12	tation workforce in the cross-disciplinary fields of ro-
13	botics, machine learning, cybersecurity, and engi-
14	neering;
15	(4) contributes as appropriate to standards,
16	codes, and processes to leverage a new generation of
17	intelligent machines; and
18	(5) engages in real-world technology deploy-
19	ments and evaluations.
20	(h) Connected and Automated Vehicle Tech-
21	NOLOGY REPORT.—Not later than 1 year after the date
22	of enactment of this Act, the Secretary shall submit to
23	the Committee on Commerce, Science, and Transportation
24	and the Committee on Environment and Public Works of
25	the Senate and the Committee on Transportation and In-

1	frastructure, the Committee on Energy and Commerce,
2	and the Committee on Science, Space, and Technology of
3	the House of Representatives, and make available on the
4	Internet website of the Department of Transportation, a
5	report that—
6	(1) describes efforts and opportunities to co-
7	ordinate research activities with connected and auto-
8	mated vehicle technology, application, and policy de-
9	velopment by public and private entities in the
10	United States and internationally;
11	(2) includes a 3-year strategic plan for research
12	activities related to connected and automated vehicle
13	technology, applications, and policies; and
14	(3) includes guidance on how connected and
15	automated vehicles are incorporated into the na-
16	tional architecture and standards and protocols re-
17	quired under section 517 of title 23, United States
18	Code, that—
19	(A) is based on cyber-physical security and
20	privacy; and
21	(B) examines the interaction with other
22	cyber-physical systems.
23	(i) Assessment.—Not later than 1 year after the
24	date of enactment of this Act, the Comptroller General
25	shall assess the organizational readiness of the Depart-

ment of Transportation to address connected and auto-

mated vehicle technology challenges. 3 (j) COORDINATION.—In carrying out this section, the 4 Secretary may enter into agreements with, and seek input 5 from, the Transportation Research Board of the National Academies, the National Institute of Standards and Tech-6 nology, the National Science Foundation, and the Depart-8 ment of Energy, and shall seek input from private sector stakeholders, including industry and nonprofit advocacy 10 groups. 11 (k) Report Review.—The Secretary may enter into 12 agreements with the Transportation Research Board of the National Academies for the review of the report de-13 14 scribed in subsection (h). 15 (1) Definitions.—In this section: 16 (1)Vehicle-to-vehicle COMMUNICATION 17 TECHNOLOGIES.—The term "vehicle-to-vehicle communication technologies" means technologies that 18 19 allow wireless communication of data between vehi-20 cles, including dedicated short range communication. 21 (2) Vehicle-to-infrastructure communica-22 TION TECHNOLOGIES.—The term "vehicle-to-infra-23 structure communication technologies" means tech-24 nologies that allow wireless communication of data

1	between vehicles and infrastructure, including dedi-
2	cated short range communication.
3	(3) ADVANCED DRIVER ASSISTANCE SYS-
4	TEMS.—The term "advanced driver assistance sys-
5	tems" means systems developed to automate, adapt,
6	or enhance vehicle systems for safer driving and im-
7	proved functionality.
8	(4) Shared-use services.—The term
9	"shared-use services" means services that share
10	transportation resources between users.
11	SEC. 3. UNIVERSITY TRANSPORTATION CENTERS PRO-
12	GRAM.
13	Section 5505 of title 49, United States Code, is
14	amended—
15	(1) in subsection (a)(2)(B) by inserting
16	"multimodal" before "transportation knowledge";
17	and
18	(2) in subsection (b)—
19	(A) by striking paragraph (2) and insert-
20	ing the following:
21	"(2) Restriction.—
22	"(A) Limitation.—A nonprofit institution
23	of higher education or the lead institution of a
24	consortium of nonprofit institutions of higher
25	education, as applicable, may only submit one

1	grant application per fiscal year for each of the
2	transportation centers described under para-
3	graphs (2), (3), and (4) of subsection (c).
4	"(B) Exception for consortium mem-
5	BERS THAT ARE NOT LEAD INSTITUTIONS.—
6	Subparagraph (A) shall not apply to a non-
7	profit institution of higher education that is a
8	member of a consortium of nonprofit institu-
9	tions of higher education but not the lead insti-
10	tution of such consortium."; and
11	(B) in paragraph (4)(B)(iii) by inserting
12	"multimodal" before "transportation prob-
13	lems"; and
14	(3) in subsection $(c)(4)$ by striking subpara-
15	graph (B) and redesignating accordingly.
16	SEC. 4. OFFICE OF SCIENCE AND TECHNOLOGY POLICY
17	WORKING GROUP.
18	(a) In General.—To improve the scientific pursuit
19	and research procedures concerning transportation, the
20	Office of Science and Technology Policy shall convene an
21	interagency working group to—
22	(1) develop within 1 year after the date of en-
23	actment of this Act a national transportation re-
24	search framework;

1	(2) identify opportunities for coordination
2	among agencies and with universities and the private
3	sector, prioritize these opportunities, and act as the
4	coordinator;
5	(3) identify, and develop a plan to implement,
6	best practices for moving transportation research re-
7	sults out of the laboratory and into application; and
8	(4) identify, and develop a plan to address, re-
9	lated workforce development needs.
10	(b) Collaboration and Support.—The Secretary
11	of Transportation may solicit the support of and identify
12	opportunities to collaborate with other Federal research
13	agencies and national laboratories to assist in the effective
14	and efficient pursuit and resolution of research challenges
15	identified by the Secretary.
16	(c) Report.—The Secretary of Transportation shall
17	submit to Congress, not later than 15 months after the
18	date of enactment of this Act, a report on the effective-
19	ness, adherence to standards and protocols, and inter-
20	agency collaboration of Department of Transportation and
21	Government-wide research on transportation-oriented
22	needs, including an identification of areas where improve-
23	ment is needed.

1	SEC. 5. RESEARCH AND TECHNOLOGY DEVELOPMENT AND
2	DEPLOYMENT AMENDMENTS.
3	(a) Accelerated Innovation Deployment.—
4	Section 503(e)(2)(B) of title 23, United States Code, is
5	amended—
6	(1) by striking clause (i) and inserting the fol-
7	lowing:
8	"(i) establish and carry out dem-
9	onstrations and workshops to promote in-
10	novations and convene strategic groups of
11	individuals influential in innovation adop-
12	tion processes;";
13	(2) in clause (ii) by striking "and" at the end;
14	(3) in clause (iii) by striking the period at the
15	end and inserting "; and"; and
16	(4) by adding at the end the following:
17	"(iv) provide assistance in defining re-
18	gional, State, and local technology needs,
19	such as through frameworks developed in
20	the National Cooperative Highway Re-
21	search Program Report 750.".
22	(b) Reauthorization of Technology and Inno-
23	VATION DEPLOYMENT PROGRAM.—Section 503(c)(3)(C)
24	of title 23, United States Code, is amended by striking
25	"2013 through 2014" and inserting "2016 through
26	2021".

1	SEC. 6. STATE PLANNING AND RESEARCH ADDITIONAL
2	PURPOSES.
3	Section 505(a) of title 23, United States Code, is
4	amended by adding at the end the following:
5	"(8) Travel for research and technology pur-
6	poses, including workshops, conferences, and dem-
7	onstrations.
8	"(9) Activities and training related to devel-
9	oping a culture of innovation and improving organi-
10	zational readiness for adoption of innovative tech-
11	nologies, such as award programs recognizing inno-
12	vative individuals.".
13	SEC. 7. BUREAU OF TRANSPORTATION STATISTICS.
14	(a) Travel Data Initiative.—The Director of the
15	Bureau of Transportation Statistics shall establish a Trav-
16	el Data Initiative to expand the existing collection of mo-
17	torized and nonmotorized roadway user travel data by ad-
18	dressing the most critical gaps in our knowledge and un-
19	derstanding of motorized and nonmotorized roadway user
20	travel.
21	(b) ADVICE.—To identify critical gaps in knowledge
22	and data collection approaches, the Director shall seek ad-
23	vice from—
24	(1) Department of Transportation advisory
25	committees;

1	(2) the Advisory Committee on Supply Chain
2	Competitiveness of the Department of Commerce;
3	and
4	(3) the Transportation Research Board of the
5	National Academies.
6	(c) Freight Fluidity Measures.—Section 502 of
7	title 23, United States Code, is amended by adding at the
8	end the following:
9	"(d) Freight Fluidity Measures.—
10	"(1) In general.—The Secretary, in coordina-
11	tion with the Office of Freight Management and Op-
12	erations of the Federal Highway Administration and
13	the Bureau of Transportation Statistics, shall estab-
14	lish and maintain freight fluidity measures.
15	"(2) Goals.—In carrying out the program, the
16	Secretary shall—
17	"(A) collect, analyze, and present freight
18	data in a timely and comprehensive manner;
19	"(B) establish reporting methods that
20	work between States and internationally; and
21	"(C) present data with the greatest level of
22	geographic detail that do not compromise con-
23	fidentiality or statistical reliability.
24	"(3) Stakeholder engagement.—The Sec-
25	retary, in coordination with the Department of Com-

- 1 merce and freight stakeholders, shall define require-
- 2 ments for the program.".
- 3 (d) Additional Authority.—Section 6302 of title
- 4 49, United States Code, is amended by adding at the end
- 5 the following:
- 6 "(d) Decisionmaking Authority.—To ensure on-
- 7 going objectivity of the products of the Director, the Di-
- 8 rector has sole decisionmaking authority in the collection,
- 9 analysis, publication, and dissemination of data and statis-
- 10 tics for the Bureau to fulfill the purposes of this section,
- 11 in accordance with Statistical Policy Directive No. 1 and
- 12 Statistical Policy Directive No. 4 of the Office of Manage-
- 13 ment and Budget and any successor directives.
- 14 "(e) Budget Allocation Authority.—The Direc-
- 15 tor shall have final authority for the disposition and allo-
- 16 cation of the authorized budget of the Bureau to enable
- 17 fulfillment of the purposes of this section, including all hir-
- 18 ing, grants, cooperative agreements, and contracts award-
- 19 ed by the Bureau, including the disposition and allocation
- 20 of funds paid to the Bureau for cost-reimbursable projects.
- 21 "(f) Information Technology Decisions.—Not-
- 22 withstanding any other provision of law, the provisions of
- 23 section 11319 of title 40 shall not apply to the Bureau
- 24 of Transportation Statistics.".

1	(e) Transportation Performance Management
2	Data Program.—Section 502 of title 23, United States
3	Code, is further amended by adding at the end the fol-
4	lowing:
5	"(e) Transportation Performance Manage-
6	MENT DATA PROGRAM.—To support States and metro-
7	politan planning organizations in carrying out the per-
8	formance management requirements of section 150, the
9	Secretary shall coordinate with modal administrations of
10	the Department and the Bureau of Transportation Statis-
11	tics to create and maintain data sets and data analysis
12	tools for all performance measures, including—
13	"(1) transportation system resilience;
14	"(2) multimodal freight connectivity; and
15	"(3) improved data collection and analysis tools
16	to accommodate performance measures, targets, and
17	related data.".
18	SEC. 8. NATIONAL COOPERATIVE FREIGHT TRANSPOR
19	TATION RESEARCH PROGRAM.
20	Section 502 of title 23, United States Code, is further
21	amended by adding at the end the following:
22	"(f) National Cooperative Freight Transpor-
23	TATION RESEARCH PROGRAM —

1	"(1) Establishment.—The Secretary shall es-
2	tablish and support a national cooperative freight
3	transportation research program.
4	"(2) AGREEMENT.—The Secretary shall enter
5	into an agreement with the Transportation Research
6	Board of the National Academies to support and
7	carry out administrative and management activities
8	relating to the governance of the national coopera-
9	tive freight transportation research program.
10	"(3) Program oversight committee.—The
11	Transportation Research Board of the National
12	Academies shall select a program oversight com-
13	mittee consisting of a representative cross-section of
14	freight stakeholders, including the Department of
15	Transportation, other Federal agencies, State trans-
16	portation departments, local governments, nonprofit
17	entities, academia, the private sector, nonprofit enti-
18	ties, trade associations, transportation coalitions,
19	and other interested parties.
20	"(4) Governance.—The national cooperative
21	freight transportation research program established
22	under this subsection shall include the following ad-
23	ministrative and management elements:
24	"(A) NATIONAL RESEARCH AGENDA.—The
25	program oversight committee, in consultation

1	with interested parties, shall recommend a na-
2	tional research agenda for the program. The
3	agenda shall—
4	"(i) include an emphasis on the safe
5	and efficient transportation and handling
6	of hazardous materials by all modes of
7	transportation;
8	"(ii) include a multiyear strategie
9	plan, recognizing freight research themes
10	and needs identified by the National
11	Freight Advisory Committee established to
12	implement the freight transportation re-
13	quirements of MAP-21 and needs identi-
14	fied by the Advisory Committee on Supply
15	Chain Competitiveness of the Department
16	of Commerce;
17	"(iii) be coordinated with the activi-
18	ties, plans, and reports required by sec-
19	tions 5304 and 5305 of title 49, United
20	States Code;
21	"(iv) be coordinated with the activi-
22	ties, plans, and reports required by section
23	508;
24	"(v) include an emphasis on workforce
25	development programs to attract more stu-

1	dents and the next generation of workers
2	to transportation planning, engineering,
3	and operation carriers; and
4	"(vi) include an emphasis on collabo-
5	ration across multiple jurisdictions and be-
6	tween public and private sector funding
7	partners to develop, maintain, and invest
8	in transportation improvements.
9	"(B) Involvement.—Interested parties
10	may—
11	"(i) submit research proposals to the
12	program oversight committee;
13	"(ii) participate in merit reviews of re-
14	search proposals and peer reviews of re-
15	search products; and
16	"(iii) receive research results.
17	"(C) OPEN COMPETITION AND PEER RE-
18	VIEW OF RESEARCH PROPOSALS.—The Trans-
19	portation Research Board of the National Acad-
20	emies may award research contracts and grants
21	under the program through open competition
22	and merit review conducted on a regular basis.
23	"(D) RESEARCH COORDINATION.—The
24	Transportation Research Board of the National
25	Academies shall ensure that research contracts

1	and grants awarded under this subsection are
2	not duplicative with research conducted under
3	other cooperative transportation research pro-
4	grams governed by the Transportation Research
5	Board of the National Academies, nor with re-
6	search conducted by the Department of Trans-
7	portation or any other Federal, State, or local
8	agency.
9	"(E) EVALUATION OF RESEARCH.—
10	"(i) Peer review.—Research con-
11	tracts and grants under the program may
12	allow peer review of the research results.
13	"(ii) Programmatic evaluations.—
14	The Transportation Research Board of the
15	National Academies may conduct periodic
16	programmatic evaluations on a regular
17	basis.
18	"(F) Dissemination of Research Find-
19	INGS.—The Transportation Research Board of
20	the National Academies shall ensure that the
21	awardees disseminate research findings to re-
22	searchers, practitioners, and decisionmakers,
23	through conferences and seminars, field dem-
24	onstrations, workshops, training programs,
25	presentations, testimony to government offi-

1	cials, the Internet, publications for the general
2	public, collaboration with the National Trans-
3	portation Library, and other appropriate
4	means.
5	"(5) Contents.—The national research agen-
6	da required under paragraph (4)(A) shall at a min-
7	imum consider research in the following areas:
8	"(A) Techniques for measuring, esti-
9	mating, and quantifying public benefits derived
10	from freight transportation projects.
11	"(B) Approaches to calculating the con-
12	tribution of truck and rail traffic to congestion
13	on specific highway segments.
14	"(C) The feasibility of consolidating origins
15	and destinations for freight movement.
16	"(D) Methods for incorporating estimates
17	of domestic and international trade entering via
18	all mode points of entry into landside transpor-
19	tation planning.
20	"(E) The use of technology applications,
21	including to intelligent transportation systems
22	applications, to increase capacity of highway
23	lanes dedicated to truck-only traffic.

1	"(F) Development of infrastructure alter-
2	natives and policy for separating car and truck
3	traffic.
4	"(G) Means of synchronizing infrastruc-
5	ture improvement projects with freight trans-
6	portation demand projections.
7	"(H) The effect of changing patterns of
8	freight movement on transportation planning
9	decisions, including accessible private and pub-
10	lic commercial vehicle parking and truck-rail
11	crossings.
12	"(I) Methods for collecting and sharing ro-
13	bust and timely freight data by all modes to in-
14	form transportation planning and operations at
15	the local, regional, and State levels.
16	"(J) Methods to gain local acceptance of
17	freight development, expansion, and growth
18	along existing corridors, terminals, and ports.
19	"(K) Impact of the development and trans-
20	port of new sources of energy on the freight
21	network capacity and performance, as well as
22	the potential for synergistic development of new
23	transportation infrastructure with distribution
24	of energy.

1	"(L) Funding and financing alternatives
2	for multimodal freight infrastructure develop-
3	ment, as well as the cost of inaction on infra-
4	structure needs to system users.
5	"(M) Other research areas to identify and
6	address emerging and future research needs re-
7	lated to freight transportation by all modes.
8	"(6) Funding.—
9	"(A) FEDERAL SHARE.—The Federal
10	share of the cost of an activity carried out
11	under this subsection may be up to 100 per-
12	cent.
13	"(B) USE OF NON-FEDERAL FUNDS.—In
14	addition to using funds authorized for this sub-
15	section, the Transportation Research Board of
16	the National Academies may seek and accept
17	additional funding sources from public and pri-
18	vate entities capable of accepting funding from
19	the Department of Transportation, States, local
20	governments, nonprofit foundations, and the
21	private sector.
22	"(C) Period of availability.—Amounts
23	made available to carry out this subsection shall
24	remain available until expended.".

1	SEC. 9. COMMERCIAL REMOTE SENSING PRODUCTS AND
2	SPATIAL INFORMATION TECHNOLOGIES.
3	Section 5506 of SAFETEA-LU (23 U.S.C. 502
4	note) is amended—
5	(1) in subsection (a)—
6	(A) by inserting "multimodal" after "na-
7	tional"; and
8	(B) by striking "construction" and insert-
9	ing "safety";
10	(2) in subsection $(b)(1)$ —
11	(A) by inserting "multimodal" after "in
12	national"; and
13	(B) by striking "construction" and insert-
14	ing "safety";
15	(3) by striking subsection (c) and inserting the
16	following:
17	"(c) COORDINATION.—The Secretary shall carry out
18	this section in coordination with—
19	"(1) the activities at the test ranges established
20	under section 332 of the FAA Modernization and
21	Reform Act of 2012 (49 U.S.C. 40101 note); and
22	"(2) the Center of Excellence for Unmanned
23	Aerial Systems of the Federal Aviation Administra-
24	tion."; and
25	(4) in subsection (d) by striking "2006 through
26	2009" and inserting "2016 through 2021".

SEC. 10. TRANSPORTATION RESEARCH AND DEVELOPMENT
STRATEGIC PLANNING.
Section 508(a) of title 23, United States Code, is
amended—
(1) in paragraph (1) by striking "the Transpor-
tation Research and Innovative Technology Act of
2012" and inserting "the Future TRIP Act"; and
(2) in paragraph (3)—
(A) in subparagraph (B) by striking "and"
at the end;
(B) in subparagraph (C) by striking the
period at the end and inserting a semicolon;
and
(C) by adding at the end the following:
"(D) assesses progress made towards goals
of previous strategic plans;
"(E) includes a description of current,
planned, and strategic future collaborations
within the Department, with other Federal
agencies, and with international entities; and
"(F) describes the benefit of research, de-
velopment, and technology to stakeholders and
end users.".

