TRANS-SAFE

TRANSFORMING ROAD SAFETY IN AFRICA

HORIZON-CL5-2021-D6-01-11:
Radical improvement of road safety in low- and medium-income countries in Africa

D6.4: Regional training activity report, training package and developed Curricula for MSc and PhD

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Summary Sheet

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Abstract	This deliverable is a living document that aims to provide an annual update on the establishment of Regional Centers of Excellence for Road Safety (CoEs) in Africa. Based on results from other Work Packages under the TRANS-SAFE project, this first year version (2023) provides a summary and recommendations from other work packages that are necessary for the establishment of the CoEs. The report also highlights other Road safety initiatives the TRANS-SAFE

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	project can be embedded on. It then gives an overview of the roadmap of activities for the establishment of the CoEs

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LIST OF ABBREVIATIONS

Acronyms	Full meaning
ADA	Americans with Disabilities Act
ARSO	The African Road Safety Observatory
AFEM	The African Federation for Emergency Medicine
BEC	Basic Emergency Care
EU	The European Union
HPR	Health Policy Research (University of Pennsylvania)
ICLEI	The International Council for Local Environmental Initiatives
ITDP	The Institute of Transportation and Development Policy
IFEM	The International Federation for Emergency Medicine
JAES	Joint EU-Africa Strategy
NARSA	National Road Safety Agency (Zambia)
RS-PAT	Road Safety Project Assessment Tool
SDG	Sustainable Development Goals
SSA	Safe Systems Approach
SANRAL	The South African Nationals Roads Agency
TRANSSAFE	Transforming Road Safety in Africa
TUB	Technical University Berlin
UNIFI	Università degli Studi di Firenze
UITP	Union Internationale des Transports Publics
UH	UN-Habitat
UNEP	United Nations Environmental Programme
WHO	World Health Organization

EXECUTIVE SUMMARY

This report is a living document that aims to provide an outline of the planned regional training activities for the next 3 years, but also to provide updates on the activities carried out for the development and implementation of deliverable 6.4 “Establish Regional Centres of Excellence for Road Safety (CoE)”. The CoE are intended to be a repository and generator of knowledge for road safety and related thematic areas in the planning, design, construction and maintenance of transport infrastructure and transport safety management.

This deliverable seeks to cultivate a body of traffic safety professionals in Africa who can investigate, document and reduce the burden of road safety injuries across Africa and create co-benefits for gender, climate and well-being. These professionals will be provided with the training and resources needed to conduct world-class traffic safety research that will inform policy and generate tailored road safety solutions for African cities.

The Centres of Excellence (CoEs) will be hosted by 3 partner Universities in Africa: The University of Cape Town (South Africa), the University of Rwanda, and the Akenten-Appiah Menka University of Skills Training and Entrepreneurial Development in Ghana (AAMUSTED). The CoEs will develop or support the integration of curricula to leverage the TRANS-SAFE project and incorporate MSc and PHD students through various research topics.

In its first year (2023), the report will provide an overview of the roadmap of activities, including identification of regional training needs and proposed research topics for the CoEs. It will also provide details on the first regional trainings conducted or planned for 2023.

This document shares insights into the planned research areas at the universities that shall be taken up by PhD or Master students, which will also provide opportunities for regional training content at the later stages of the TRANS-SAFE project.

Being a living document, the future iterations of the report will update on progress made on regional trainings as well as research collaborations.

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1. INTRODUCTION

About TRANS-SAFE

The TRANS-SAFE project involves national, regional, and city level demonstrations to test different types of innovative and integrated Safe System solutions, complemented by a comprehensive toolbox, capacity development, policy support and replication activities. To maximize impact, the project brings together in a consortium, highly committed cities, road safety agencies and experts from both Europe and Africa. Building on numerous synergistic projects, networks, and a strong technical experience among partners, the consortium will deliver on project objectives through highly effective and innovative approaches to sustainable road safety development, thereby ensuring that road safety systems and interventions from this project deliver on the recommendations of the Road Safety Cluster of the African-EU Transport Task Force, adopted in 2020. The consortium members have experience and expertise in Africa-related research as well as development-related research in collaboration with local actors in various countries of Africa at many levels. Ultimately, the project will help deliver on the Joint EU-Africa Strategy (JAES) and advance countries' progress towards the 2030 Agenda for Sustainable Development and the Sustainable Development Goals (SDGs). TRANS-SAFE leverages on existing partnerships to collaboratively design sustainable interventions that aim to radically transform road safety systems in Africa.

2. REPORT STRUCTURE

This report is a living document prepared under the TRANS-SAFE work package 6, deliverable 6.4, which seeks to provide a roadmap for the establishment of Regional Centres of Excellence for road Safety (CoEs) in Africa with the aim of executing the project capacity building initiatives. The establishment of the centres will be built on the findings from other work packages under the TRANS-SAFE project. This report will also demonstrate how the CoEs will be embedded in the Urban Living Lab Center (ULLC) and how the TRANS-SAFE capacity building forms part of the Road Safety Hub, under the ULLC Mobility Hub. The Road Safety Hub shall be acting as an online toolbox containing education materials, trainings targeted at different road users in Africa and covering the safe systems approach (see related TRANS SAFE Key Performance Indicator).

Furthermore, this report introduces the CoEs and their specific thematic focus areas in alignment with the TRANS-SAFE project. It also outlines a road map for regional training plans based on the outcomes of the skills and training audit and giving detailed insights into trainings conducted or planned for in 2023, while referring to training packages. Lastly, this report will introduce the plans of the university partners in terms of conducting research on different areas of road safety through MSc or PHD collaboration.

The creation of this report relied heavily on input from other work packages as well as insight from other road safety initiatives such as the Living Labs and other projects including AfroSafe and the Alliance of Cities for Road Safety. The main objective of D6.4 is to establish Regional Centres of Excellence for Road Safety (CoEs) where road safety professionals can get necessary road safety raining that is severely lacking in the continent. It is therefore paramount that this exercise be supported by research and programs (particularly from other TRANS-SAFE WPs) that will ensure the successful establishment of the centres.

All recommendations suggested for the CoEs are embedded on the Safe Systems Approach and contextualized for local implementation through the demonstration projects.

3. EMBEDDING THE REGIONAL CENTERS OF EXCELLENCE IN OTHER TRANS-SAFE WORK PACKAGES

Work Package 1

The main objective of work package 1 is to undertake in-depth investigations into road accidents and identify contributing factors behind traffic crashes and whether they are related to the road user, vehicle, traffic environment or traffic systems. The findings from this work package are instrumental in setting the stage for CoEs because it is from there that the centres will have an in-depth understanding of the existing road safety standards and trends in Africa.

From this work package we expect to get an in-depth understanding of the following: the main causes of road traffic crashes and the nature of the crashes; locations of hotspots/black spots; road safety trends over the past few years across different regions; road safety projections over the next few years across different regions; vulnerability index across different cities; best practices; strengths, weaknesses and opportunities of existing policies and regulatory instruments etc.

Work Package 2.

The main objective of work package two is to ensure knowledge development and shared responsibility on road safety management, safer roads, safer vehicles, safer road users and better post-crash response. This work package explains in great lengths the Safe Systems Approach (SSA) and how four cities in Africa have made attempts at integrating the SSA in the road safety initiatives. This work package also highlights other Africa and Global road safety action plans which are resourceful in gaining further understanding of road safety needs and targets for Africa.

From this work package, the CoEs stand to gain an in-depth understanding of the existing safe systems policies and practises in different countries that align with the SSA. The centres will also have access to a network of peers, have access to best practices from across different countries and lastly understand the existing technical capacities in different countries.

Work Package 3.

The main objective of work package 3 is to analyse and propose processes that will lead to the reduction of safety issues. This work package explores the safety of vehicles, road designs and post-crash care and proposes different solutions based on existing safety tools (indexes).

From WP3, the CoEs stand to gain the following: an understanding of different vehicle-based risks; an understanding on existing driver assistance systems, trainings on cargo and load capacity, automated speed enforcement systems and people's perception of the system. From this work package, the CoEs will also get to understand different assessment strategies for crash causes and patterns, hot spots vs proposed road design modifications and understand post-crash trainings administered in Africa. Lastly, from this work page the centres stand to gain access to different strategies for monitoring and enforcing personal road safety.

Work Package 4.

The main objective for work package 4 is to design, develop and implement a series of small-scale pilot demonstration projects (Living Labs) to test the implementation of Safe System Approach at different levels (national, regional and city).

From this work package, the CoEs will learn about selection of demo projects, implementing methodologies and how they align with the SSA. The centres will also learn about the extensive network of local and international partners who can support with the demo projects.

Work Package 5.

This task assesses the overall impact, effectiveness, efficiency and sustainability of the pilot demonstration projects and their application to the SSA. This task will also perform a comprehensive impact assessment and evaluation of the demonstration project against economic, social and institutional perspectives according to the tenets of the SSA.

From this work package, the CoEs aim to gain an in-depth understanding of strengths, weaknesses, gaps and opportunities of the demonstration projects in addressing road safety needs of different regions and their alignment to the TRANS-SAFE KPIs. This work package is also crucial in identifying and assessing indicators of success that will ensure sustainability, scalability and applicability of the demonstration projects, also for replication within the region.

Work Package 6.

The main objective for work package 6 is to identify skills and training needs for local and national policy makers, practitioners, NGO's and entrepreneurs to develop, implement and operate innovative road safety initiatives. This task also seeks to cultivate an expert body of Road Safety knowledge in Africa. These centres will stand as repository and generator of knowledge regarding road safety in the planning, design, construction and maintenance of transport infrastructure and Transport Safety Management.

From task 6.1, the CoEs can gain access to a rich database of key road safety practitioners and institutions. These practitioners and institutions will be crucial in supporting institutions and cities in developing suitable, sustainable, replicable or scalable projects or trainings guided by the SSA.

This deliverable also shares findings of a capacity needs assessment on a regional level. This will be important information for the centres as it will help guide course identification and development.

4. EMBEDDING TRANS-SAFE IN THE URBAN LIVING LAB CENTER

This chapter illustrates how the TRANS-SAFE Regional Centers of Excellence are embedded in the wider Urban Living Lab Center (ULLC) Initiative and how the TRANS-SAFE capacity building forms part of the Road Safety Hub, under the ULLC Mobility Hub, with the aim to reach a wider audience beyond the TRANS-SAFE networks.

4.1 URBAN LIVING LAB CENTER

The Urban Living Lab Center (ULLC) is the first Collaborating Center of the United Nations Human Settlements Programme (UN-Habitat) and was launched in May 2022 in Berlin. It is co-hosted by Massachusetts Institute of Technology (MIT), Technical University Berlin (TUB) and the Wuppertal Institute for Climate, Environment and Energy. Partner Universities host regional and thematic hubs, which provide support to the local co-development processes in the urban living labs, and deliver capacity building modules, while supporting research and development.

On the fringes of the G7 sustainable urban development ministers' meeting, in September 2022, the Executive Director of UN-Habitat has inaugurated the Mobility Hub of the Urban Living Lab Center to emphasize the strong commitment to local implementation action towards safe, sustainable and low-carbon urban mobility. The ULLC Mobility Hub is hosted by the Urban Electric Mobility Initiative

(UEMI), an Action Platform, which works with partners internationally on demonstrating the validity of sustainable mobility solutions since the UN Climate Summit in 2014, where the platform was launched. The thematic hub of mobility works together with local authorities, entrepreneurs, academia and civil society organisations on innovative policy, business and finance solutions for sustainable transport. The ULLC builds on a wide range of research projects such as the IKI funded Urban Pathways project, the EU funded SOLUTIONSplus and Smart Energy Solutions for Africa (SESA) project, among others.

4.1 THE ROAD SAFETY HUB

The Road Safety Hub shall be embedded under the Mobility Hub of the Urban Living Lab Center and is intended to be a platform in transforming urban living spaces into safer environments through innovative, sustainable, and inclusive road safety strategies. Its mission is to unite, empower, and mobilize a global network of road safety stakeholders towards creating safer urban communities by leveraging data, research, best practices, and cutting-edge technology.

The Road Safety Hub shall focus on the following **key areas**:

- Research and Innovation: Promote innovative research and development in road safety, including technologies, behavioural sciences, urban planning, and more. The hub will also foster innovative solutions from road safety Living Labs, ensuring their results are shared and lessons learned are incorporated into new initiatives.

- Collaboration and Knowledge Sharing: Establish a collaborative platform for road safety agencies, experts, universities, policymakers, and other relevant stakeholders. This will foster knowledge sharing, joint research initiatives, capacity building, and the development of effective and sustainable road safety solutions.

- Education and Capacity Building: Develop and implement road safety education and training programs targeted at different audience segments, including local authorities, policymakers, urban planners, and the public. This would involve collaboration with partner universities to integrate road safety modules into their curricula.

- Policy Development and Advocacy: Influence urban development and transportation policies through evidence-based advocacy. The hub will support the formulation and implementation of data-driven and context-specific road safety policies.

- Community Engagement: Promote community involvement in road safety initiatives. This could include raising public awareness, promoting behavioural change, and encouraging the community to participate in local road safety initiatives.

Strategic Initiatives:

- Develop an Online Knowledge and Resource Center: This will act as a repository for research findings, best practices, case studies, policy documents, training materials, and other relevant road safety resources. It will also host webinars, online courses, and other virtual capacity-building initiatives.

- Initiate Joint Research and Development Projects: Collaborate with partner universities and other stakeholders on specific road safety research and development projects. The results of these projects will inform policy decisions and the development of practical road safety solutions.

- Establish Regional Sub-Hubs: Depending on the geographical focus and specific road safety challenges, regional sub-hubs can be established. These sub-hubs will facilitate the implementation of localized road safety initiatives and serve as a platform for regional collaboration and knowledge sharing.

- Create a Road Safety Innovation Incubator: The hub will facilitate the development of innovative road safety solutions by providing support to startups and innovators. This could include mentorship, technical assistance, and access to funding and networking opportunities.

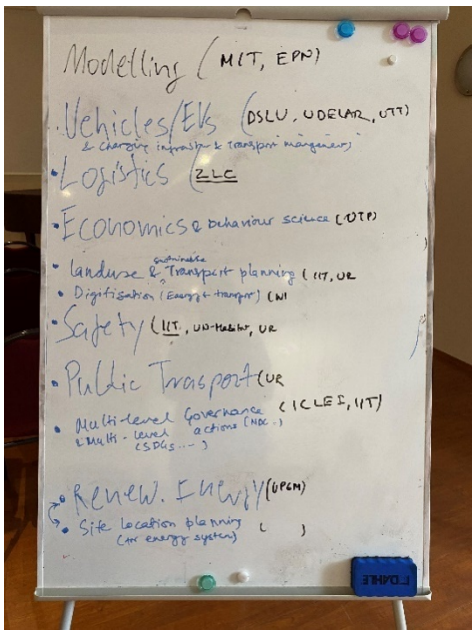
- Organize Annual Road Safety Conferences and Forums: These events will provide opportunities for networking, knowledge sharing, and collaboration among road safety stakeholders. It will also serve as a platform to showcase innovative road safety solutions and highlight successful road safety initiatives.

Key **partners** will include Akenten Appiah-Menka University of Skills Training and Entrepreneurial Development (AAMUSTED) in Ghana, the University of Cape Town in South Africa, the University of Rwanda, the University of Florence, the Technical University Ingolstadt, and beyond the TRANS_SAFE consortium also the University of the Philippines and the Indian Institute of Technology (IIT Delhi), among others. These institutions will contribute their expertise and resources to the hub's initiatives, enhancing its capacity to achieve its mission and objectives.

The TRANS-SAFE Partners will have the opportunity to co-develop knowledge and training products rooted in the ongoing living lab activities and the delivery of capacity building and education in the respective regions.

During the Summer School of the Urban Living Lab Center, taking place from 22-24 August 2024, representatives of the TRANS-SAFE Regional Centers of Excellence (University of Cape Town, University of Rwanda) were participating in the discussion around academic collaborations. One concrete outcome is a foreseen collaboration with Indian Institute of Technology (IIT Delhi) on the TRANS-SAFE virtual learning courses. IIT Delhi expressed interest to facilitate a case study session with focus on Safe Routes to School, and a session around data.

Figure 1: Summer School at the Urban Living Lab Center with representatives from the TRANS SAFE Regional Centers of Excellence (Kigali and Cape Town)



5. CAPACITY BUILDING MODALITIES UNDER TRANS-SAFE

The following capacity building modalities have been identified by TRANS-SAFE in the capacity building programme.

- Global E-learning activities
- Peer-to-peer exchange programmes & Study Tours
- City Specific Trainings in the Living Labs
- **Regional training workshops**
- Global Training Events linked to International Conferences
- **Research Programmes for Master and PhD students & development of knowledge products**

The Regional Centers of Excellence will be contributing as the focal point to the Regional Training Workshops as well as the Research Programmes for Master and PhD students & development of knowledge products, which will be explained in further detail below.

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6. REGIONAL TRAINING ACTIVITY REPORT (ROADMAP)

6.1 OUTCOMES OF THE TRAINING NEEDS AND SKILL AUDIT – PER REGION

The following chapters will describe the outcomes of the Training Needs and Skill Audit and showcase the relevant results, broken down by region, that will inform the regional trainings and capacity building activities of the Regional Centers of Excellence going forward.

6.1.1 Interest in Road Safety

Table 1: Interest in Road Safety by Region

Regions	Coordination	Education and Information	Data, research and evaluation	Road rules and enforcement	Licensing and registration	Standards	Innovation
Eastern	51.4%	70.3%	67.6%	37.8%	8.1%	10.8%	27.0%
Southern and Ce	33.3%	80.0%	46.7%	46.7%	13.3%	40.0%	53.3%
Northern and W	44.9%	77.6%	44.9%	46.9%	14.3%	28.6%	32.7%

In terms of interest in road safety by region, 70.3% of the respondents from the Eastern African region were interested in “education and information”, followed by 67.6% interest in data, research and evaluation.

Out of the respondents of the Southern and Central African regions, 80.0% were interested in “education and information”, followed by 53.3% in “innovation”.

For the Northern and Western African regions, particular interest lies in “education and information” (77.6%), followed by “road rules and enforcement” (46.9%).

6.1.2 Interest of Regions in Safe Systems Approach

- Safe Road Users

Table 2: Regional Delivery Capacity - Safe Road Users

Safe Road Users	Confident will deliver			Probably can deliver			Need support to deliver		
	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and
Legislation	33.3%	6.7%	40.0%	36.1%	53.3%	28.9%	30.6%	40.0%	31.1%
Enforcement	20.0%	13.3%	36.4%	20.0%	33.3%	25.0%	60.0%	53.3%	38.6%
Education	28.6%	13.3%	27.3%	40.0%	40.0%	27.3%	31.4%	46.7%	45.5%
Technology	13.9%	0.0%	26.7%	19.4%	28.6%	15.6%	66.7%	71.4%	57.8%

On the topic of Safe Road Users, the Eastern African Region is particularly interested in support on "Technology" (66.7%) and "Enforcement" (60%) for delivering better road safety outcomes.

For respondents from Southern and Central African Regions, particular support is needed for "Technology" (71.4%), followed by "Enforcement" (53.3%).

For the Northern and Western African Regions, "Technology" (57.8%) has highest priority for support, followed by "Education" (45.5%).

- Safe Vehicles

Table 3: Regional Delivery Capacity - Safe Vehicles

Safe Vehicles	Confident will deliver			Probably can deliver			Need support to deliver		
	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and
Legislation	21.2%	6.7%	39.1%	39.4%	33.3%	34.8%	39.4%	60.0%	26.1%
Enforcement	17.6%	7.1%	40.9%	38.2%	35.7%	27.3%	44.1%	57.1%	31.8%
Education	35.3%	33.3%	34.1%	38.2%	20.0%	29.5%	26.5%	46.7%	36.4%
Technology	11.8%	14.3%	28.3%	14.7%	14.3%	26.1%	73.5%	71.4%	45.7%

For Safe Vehicles significant support is needed in all regions for the legislation, enforcement, but particularly technology aspects, with the highest need for capacity building.

The highest priority of the Eastern African Region is on “Technology” (73.5%), followed by “Enforcement” (44.1%).

For respondents from Southern and Central African Regions, particular support is needed for “Technology” (71.4%), followed by “Legislation” (60%).

In the Northern and Western African Regions, highest priority is given to “Technology” (45.7%) and “Education” (36.4%).

- Safe Roads

Table 4: Regional Delivery Capacity - Safe Roads

Safe Roads	Confident will deliver			Probably can deliver			Need support to deliver		
	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and
Legislation	5.9%	7.1%	39.1%	35.3%	35.7%	21.7%	58.8%	57.1%	39.1%
Enforcement	5.9%	0.0%	29.5%	38.2%	20.0%	27.3%	55.9%	80.0%	43.2%
Education	17.6%	14.3%	37.2%	44.1%	42.9%	18.6%	38.2%	42.9%	44.2%
Technology	5.9%	6.7%	32.6%	23.5%	20.0%	18.6%	70.6%	73.3%	48.8%

With regards to capacity on Safe Roads, the Eastern African Region has particular interest in “Technology (70.6%), followed by “Legislation” (58.8%).

The Southern and Central African Regions require substantial support on the pillar of “Safe Roads” with regards to “Enforcement” (80%) and “Technology” (73.3%).

For the Northern and Central African Regions, highest priority for support is needed for “Technology (48.8%), followed with “Education” (44.2%).

- Multimodal Transport and Land-Use Planning

Table 5: Regional Delivery Capacity – Multimodal Transport and Land-Use Planning

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Multimodal Transport	Confident will deliver			Probably can deliver			Need support to deliver		
	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and
Legislation	8.8%	6.7%	35.6%	32.4%	33.3%	26.7%	58.8%	60.0%	37.8%
Enforcement	9.7%	0.0%	25.0%	19.4%	23.1%	25.0%	71.0%	76.9%	50.0%
Education	14.7%	6.7%	26.2%	41.2%	40.0%	31.0%	44.1%	53.3%	42.9%
Technology	14.3%	7.1%	29.5%	20.0%	28.6%	20.5%	65.7%	64.3%	50.0%

On the topic of Multimodal Transport and Land Use Planning, the Eastern African Region is particularly interested in support on "Enforcement" (71%) as well as "Technology" (65.7%) for delivering better road safety outcomes.

For respondents from Southern and Central African Regions, particular support is needed for "Enforcement" (76.9%), followed by "Technology" (64.3%).

For the Northern and Western African Regions, "Technology" and "Enforcement" (both at 50%) are highest priority for support.

- Post-Crash Response

Table 6: Regional Delivery Capacity – Post-Crash Response

Post-Crash Response	Confident will deliver			Probably can deliver			Need support to deliver		
	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and	Eastern	Southern and Central	Northern and
Legislation	13.9%	6.7%	27.3%	16.7%	40.0%	27.3%	69.4%	53.3%	45.5%
Enforcement	13.9%	0.0%	21.4%	8.3%	21.4%	23.8%	77.8%	78.6%	54.8%
Education	13.9%	6.7%	26.1%	33.3%	26.7%	23.9%	52.8%	66.7%	50.0%
Technology	13.5%	0.0%	21.4%	16.2%	28.6%	19.0%	70.3%	71.4%	59.5%

For Post Crash Response, significant support is needed by the Eastern African Region on "Enforcement" (77.8%), followed by "Technology" (70.3%).

For respondents from Southern and Central African Regions, particular support is needed for "Enforcement" (78.6%), followed by "Technology" (71.4%).

In the Northern and Western African Regions, highest priority is given to "Technology" (59.5%) and "Enforcement" (54.8%).

6.1.3 Interest of Regions in “Requirements for Implementation”

- Financing

Table 7: Assessment and TRANS-SAFE support – Financing

	Eastern				Southern and Central				Northern and Western			
	Available already	Has potential	Unlikely	TRANS-SAFE could help	Available already	Has potential	Unlikely	TRANS-SAFE could help	Available already	Has potential	Unlikely	TRANS-SAFE could help
Central government allocations	27.0%	24.3%	21.6%	27.0%	20.0%	40.0%	6.7%	33.3%	39.1%	26.1%	4.3%	30.4%
Local government allocations	13.5%	18.9%	37.8%	29.7%	16.7%	33.3%	25.0%	25.0%	23.9%	34.8%	17.4%	23.9%
Road user charges	19.4%	36.1%	30.6%	13.9%	20.0%	53.3%	6.7%	20.0%	22.0%	26.8%	24.4%	26.8%
Levies on private sector insurance	8.3%	44.4%	36.1%	11.1%	0.0%	85.7%	0.0%	14.3%	25.6%	39.5%	18.6%	16.3%
Surplus from government insurance	5.4%	29.7%	51.4%	13.5%	0.0%	46.2%	38.5%	15.4%	15.0%	32.5%	30.0%	22.5%
Use of traffic fines	16.7%	55.6%	11.1%	16.7%	13.3%	66.7%	0.0%	20.0%	26.2%	52.4%	9.5%	11.9%
Social impact bonds	5.6%	22.2%	36.1%	36.1%	0.0%	35.7%	28.6%	35.7%	12.5%	40.0%	30.0%	17.5%
Short term bridging funds	14.7%	35.3%	5.9%	44.1%	7.7%	46.2%	7.7%	38.5%	17.5%	40.0%	10.0%	32.5%

In terms of financing, the Eastern African Region feels that TRANS-SAFE could particularly support with “short-term bridging funds” (44.1%), followed by “social impact bonds” (36.1%).

Similarly, for the Southern and Central African Regions, highest priority for TRANS-SAFE support is also expected for “short-term bridging funds” (46.2%), followed by “social impact bonds”.

Respondents from Northern and Western African Regions indicated that TRANS-SAFE could support with “short-term bridging funds” (32.5%), as well as “central government allocations” (30.4%).

- Legal Frameworks

Table 8: Assessment and TRANS-SAFE support – Legal Frameworks

On the topic of legal frameworks, respondents in the Eastern African Region feel that TRANS-SAFE could help with "Vehicles safety and environmental performance regulations" (38.9%), followed by "Operations, driver training and vehicle construction standards for dangerous goods" (38.2%).

The Southern and Central African regions, indicate that TRANS-SAFE could particularly support with "Operations, driver training and vehicle construction standards for dangerous goods" (46.2%), as well as "Vehicles safety and environmental performance regulations" (42.9%).

The Northern and Western African Regions are generally more confident about their legal frameworks for road safety, however, feel that TRANS-SAFE should support on "Safety and environmental standards for wheeled manufactured vehicles" (22.7%), followed by "Operations, driver training and vehicle construction standards for dangerous goods" (20.5%).

- Speed Management

	Eastern					Southern and Central					Northern and Western				
	Adopted in national or regional legislation	Applied effectively	Enforced by traffic police and inspection bodies	Don't know	TRANS-SAFE could help	Adopted in national or regional legislation	Applied effectively	Enforced by traffic police and inspection bodies	Don't know	TRANS-SAFE could help	Adopted in national or regional legislation	Applied effectively	Enforced by traffic police and inspection bodies	Don't know	TRANS-SAFE could help
Uniform road traffic rules	48.6%	8.1%	27.0%	5.4%	10.8%	33.3%	20.0%	26.7%	0.0%	20.0%	43.5%	15.2%	34.8%	2.2%	4.3%
Road signs and signals system	30.6%	16.7%	30.6%	5.6%	16.7%	28.6%	50.0%	14.3%	0.0%	7.1%	34.1%	27.3%	25.0%	0.0%	13.6%
Safety and environmental	21.6%	10.8%	18.9%	13.5%	35.1%	13.3%	26.7%	20.0%	6.7%	33.3%	38.6%	15.9%	13.6%	9.1%	22.7%
Cross-border wheeled vehicles inspection	22.9%	11.4%	14.3%	37.1%	14.3%	0.0%	21.4%	28.6%	21.4%	28.6%	31.8%	22.7%	15.9%	22.7%	6.8%
Vehicles safety and environmental	19.4%	11.1%	13.9%	16.7%	38.9%	14.3%	14.3%	21.4%	7.1%	42.9%	37.8%	20.0%	22.2%	6.7%	13.3%
Operations, driver training and vehicle	20.6%	14.7%	17.6%	8.8%	38.2%	7.7%	15.4%	23.1%	7.7%	46.2%	36.4%	15.9%	15.9%	11.4%	20.5%

Table 9: Assessment and TRANS-SAFE support – Speed Management

		Applied and having effective outcomes	Applied but not effective	Not applied	Don't know	TRANS-SAFE could help
Eastern	Road design and engineering	30.6%	52.8%	5.6%	0.0%	11.1%
	Vehicle interventions	22.2%	36.1%	25.0%	0.0%	16.7%
	Behaviour change	16.7%	50.0%	22.2%	0.0%	11.1%
Southern and Central	Road design and engineering	14.3%	57.1%	7.1%	0.0%	21.4%
	Vehicle interventions	7.1%	42.9%	14.3%	0.0%	35.7%
	Behaviour change	7.7%	46.2%	15.4%	0.0%	30.8%
Northern and Western	Road design and engineering	32.6%	47.8%	8.7%	0.0%	10.9%
	Vehicle interventions	20.0%	51.1%	15.6%	0.0%	13.3%
	Behaviour change	17.8%	42.2%	20.0%	0.0%	20.0%

The general sentiment across all regions is that speed management is applied but not effectively.

The Eastern African Region, as well as the Southern and Central African Regions feel that TRANS-SAFE could help regarding "vehicle interventions" with 16.7% and 35.7% respectively.

Respondents from the Northern and Western African Regions indicate that TRANS-SAFE can help with "behaviour change" (20%).

- Gender

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Table 10: Assessment and TRANS-SAFE support – Speed Management

		Implemented fully	Implemented partly	Not implemented	Don't know	TRANS-SAFE could help
Eastern	Transport policy frameworks provide an enabling environment for both men and women to share safe, secure, accessible, reliable and sustainable mobility, and non-discriminatory participation in transport	16.7%	30.6%	30.6%	5.6%	16.7%
	Women are involved in the transport sector and its processes as operators in transport systems, as decision-makers in the development of regulatory and policy systems, as engineers and designers, and everywhere in between	22.9%	48.6%	17.1%	2.9%	8.6%
	Gender differences are a focus of the design and construction of all aspects of transport infrastructure	5.6%	30.6%	38.9%	11.1%	13.9%
Southern and Central	Transport policy frameworks provide an enabling environment for both men and women to share safe, secure, accessible, reliable and sustainable mobility, and non-discriminatory participation in transport	7.1%	28.6%	28.6%	14.3%	21.4%
	Women are involved in the transport sector and its processes as operators in transport systems, as decision-makers in the development of regulatory and policy systems, as engineers and designers, and everywhere in between	7.1%	35.7%	14.3%	14.3%	28.6%
	Gender differences are a focus of the design and construction of all aspects of transport infrastructure	0.0%	28.6%	35.7%	0.0%	35.7%
Northern and Western	Transport policy frameworks provide an enabling environment for both men and women to share safe, secure, accessible, reliable and sustainable mobility, and non-discriminatory participation in transport	15.6%	44.4%	24.4%	2.2%	13.3%
	Women are involved in the transport sector and its processes as operators in transport systems, as decision-makers in the development of regulatory and policy systems, as engineers and designers, and everywhere in between	22.2%	37.8%	17.8%	6.7%	15.6%
	Gender differences are a focus of the design and construction of all aspects of transport infrastructure	9.3%	32.6%	30.2%	7.0%	20.9%

Gender perspectives in road safety are only partially implemented in all 3 regions, with no region that has fully implemented gender perspectives.

The Eastern African Region expects TRANS-SAFE to support provisions in transport policy frameworks to provide an enabling environment for both men and women to share safe, secure, accessible, reliable and sustainable mobility, and non-discriminatory participation in transport.

For the Southern and Central regions, as well as the Northern and Western African Regions, TRANS-SAFE can support to ensure that gender differences are a focus of the design and construction of all aspects of transport infrastructure.

6.1.4 TRANS-SAFE support required per region

Across all three regions, there is a general agreement that TRANS-SAFE can support the development of capacity for better road safety outcomes. For the Eastern African Region, particular support is desired on “Data collection, tools and databases for the African Road Safety Observatory” (94.6%), while for the Southern and Central African Region, as well as the Northern and Western African region, priority lies on “political and societal support to tackle road safety at the national level” (93.3% and 83.7% respectively).

Table 11: Analysis of TRANS-SAFE support by region

Select the TRANS-SAFE project support required for the development of capacity for better road safety outcomes.

By Region	TOTAL	Eastern	Southern and Central	Northern and Western
1. Data collection, tools, and databases for the African Road Safety Observatory	81.5%	94.6%	66.7%	77.6%
2. Commitment to the African Road Safety Charter and the UN Road Safety Conventions	84.8%	91.9%	86.7%	75.5%
3. Political and societal support to tackle road safety at the national level	85.9%	86.5%	93.3%	83.7%
4. Tailored road safety strategies, set targets and key performance indicators	81.5%	86.5%	66.7%	75.5%
5. Regional Centres of Excellence for Road Safety	69.6%	73.0%	73.3%	59.2%
6. Road safety assessment capacity and more extensive road safety ratings	77.2%	78.4%	73.3%	69.4%
7. Capacity to assess and evaluate infrastructure for road safety	73.9%	78.4%	80.0%	67.3%
8. Application of vehicle standards across the continent	60.9%	70.3%	73.3%	51.0%
9. Knowledge of vehicle safety regulation and testing techniques	71.7%	83.8%	73.3%	55.1%
10. Empowering road users with road safety advocacy tools and principles, especially for people walking and cycling.	78.3%	81.1%	73.3%	69.4%
11. Speed limit and traffic violation enforcement	70.7%	75.7%	80.0%	65.3%
12. Training for professional drivers in road safety risks and mitigation actions	78.3%	86.5%	80.0%	69.4%
13. Training and technical capacity building to integrate road safety in public space design and transport planning strategies.	84.8%	89.2%	80.0%	77.6%
14. Training in post-crash care for healthcare providers	68.5%	64.9%	73.3%	63.3%
15. Training in very simple post-crash care for lay person responders	66.3%	64.9%	73.3%	59.2%
16. Resiliency training for healthcare providers and citizens with frequent exposure to road traffic injuries	60.9%	56.8%	60.0%	57.1%
17. Comprehensive support for overall emergency care systems, building post-crash care resources from the ground up	63.0%	54.1%	73.3%	63.3%

6.2 INTRODUCTION TO THE REGIONAL CENTERS OF EXCELLENCE ON ROAD SAFETY

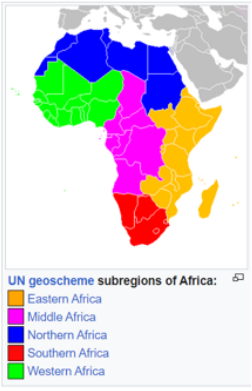
This chapter identifies the institutions that were selected to be matched with the Regional Centers of Excellence (Rwanda, South Africa and Ghana) after the skills audit and training needs assessment.

Figure 2: Mapping of Regional Centers of Excellence

The University of Rwanda: Eastern Africa:
- Burundi
- Ethiopia
- Kenya
- Madagascar
- Malawi
- Mauritius
- Mozambique
- **Rwanda**
- Tanzania
- Uganda
- Zambia
- Zimbabwe

University of Cape Town, Southern Africa, Middle Africa:
- Botswana
- Cameroon
- Central Africa Republic
- Congo DRC
- Gabon
- Lesotho
- Namibia
- **South Africa**
- Eswatini

AAMUSTED Ghana, Western Africa, Northern Africa:
- Algeria
- Benin
- Burkina Faso
- Cabo Verde
- Egypt
- Gambia
- **Ghana**
- Ivory Coast
- Liberia
- Morocco
- Niger
- Nigeria
- Senegal
- Sierra Leone
- Togo
- Tunisia



Funded by the European Union

This chapter identifies the institutions that were selected to be matched with the Regional Centers of Excellence (Rwanda, South Africa and Ghana) after the skills audit and training needs assessment.

The Regional Centers of Excellence have their unique expertise and skillset, representing the following diverse disciplines in alignment with the Safe Systems approach:

1) **University of Rwanda - Eastern African Regional Center of Excellence.** In the TRANS SAFE project, the University of Rwanda will be focusing on data, technology and post-crash response.

2) **University of Cape Town, Southern and Middle African Regional Center of Excellence.** In the TRANS SAFE project, the University of Cape Town will be focusing on safe infrastructure, active mobility, complete streets and cost-benefit analysis.

3) **Akenten-Appiah Menka University of Skills Training and Entrepreneurial Development (AAMUSTED Ghana) – Western and Northen African Regional Center of Excellence i**n the TRANS SAFE project, AAMUSTED Ghana will be focusing on using new technology (such as smart traffic light and traffic control systems, artificial intelligence) to improve road safety, safe infrastructure and post-crash care.

The CoEs are meant to act as platforms for knowledge and technical expertise and provide the needed implementation support to the demonstration actions implemented under Work Package 4. The goal of the centre is to execute the capacity building initiatives under the TRANS SAFE project with sub-regional relevance and focus.

Objectives:

- To cultivate an expert body of African traffic safety professionals and engage community networks with skills to investigate, document, and reduce the burden of road traffic injury across Africa.
- To be a repository and generator of knowledge regarding road traffic safety in the planning, design, construction, and maintenance of transport infrastructure and Transport Safety Management. (Embed this in the regional centre via an existing online platform)
- To support the professional development of technical staff from various government agencies related to road safety.

6.3 REGIONAL TRAININGS IN TRANS-SAFE

The following Regional Trainings have been conducted or are being planned by the Regional Centers of Excellence and other consortium partners in the duration of the TRANS SAFE project:

Table 12: Regional Trainings in 2023

Country	City	Date	Topic (s)
Ghana	Kumasi	July 2023	UNEP presented on the Safe Systems Approach to stakeholders in Accra, Ghana. The workshop focused on the importance of holistic road safety initiatives in improving conditions for people that walk and cycle. There were 38 participants. The majority of were from the Accra Metropolitan Assembly, however, there were also representatives from the National Road Safety Authority, Kumasi and local cycling federation.
Rwanda	Kigali	October 2023 (Walk21 conference)	Post-crash care (stop the bleed) during Walk21 conference; practical session with first responders (HPR)
Rwanda	Kigali	October 2023 (Walk21 conference)	Best Practice Guide session on Road Safety (University of Cape Town)
Rwanda	Kigali	October 2023 (Walk21 conference)	Safe Vehicle Session (UNEP/ SOLUTIONSplus); prior to Summit planned for 2024
Rwanda	Kigali	October 2023 (Walk21 conference)	Walkshop “urban dialogue on street design” - UNEP
Rwanda	Kigali	October 2023 (Walk21 conference)	UN-Habitat session “community led street transformation”
Rwanda	Kigali	October 2023 (Walk21 conference)	TRANS-SAFE peer to peer exchange session - ICLEI

Figure 3: Stakeholders and trainers from the Accra training on inclusive cycling practices

Future Regional Trainings planned at the Regional Centers of Excellence
The following Regional Trainings have been proposed by the Regional CoEs to be conducted during the TRANS-SAFE project period.

Table 13: Proposed Regional Trainings – Eastern Africa (University of Rwanda)

Possible Location	Possible Date	Proposed Topics
Kigali	October 2023	Stop the Bleed

Table 14: Proposed Regional trainings Southern Africa (University of Cape Town)

Possible Location	Possible Date	Proposed Topics
Cape Town	tbc	Transport justice and road safety
Cape Town	Tbc	Walking and cycling policy development
Cape Town	Tbc	Universal design/ADA
Cape Town	Tbc	Road traffic crash investigation
Cape Town	tbc	Road safety data course (with ARSO)

Table 15: Proposed Regional trainings Western and Northern African (AAMUSTED Ghana)

Possible Location	Possible Date	Topics
Kumasi	Tbc	Designing pedestrian and cycling-friendly cities
Kumasi	Tbc	Smart Infrastructure for Safer Roads: Exploring Intelligent Roadway Monitoring Systems
Kumasi	Tbc	Addressing Challenges in Post-Crash Care
Rabat	Tbc	Future Trends in Road Safety Technology: A Roadmap for Safer Transportation
Kumasi	Tbc	Smart Traffic Light Systems: Enhancing Road Safety through AI and IoT Integration
Rabat	Tbc	Advancements in Emergency Medical Response and Post-Crash Care

The list of regional trainings is not exhaustive and may be adjusted over time in the duration of the project. Adjustments will be shared in the annual updates of this deliverable.

7. TRANS-SAFE CONTRIBUTION TO THE CURRICULUM DEVELOPMENT FOR MSC AND PHD RESEARCH

The TRANS-SAFE project provides an opportunity for the development of curricula or support for existing courses for Road Safety in host universities. The curricula will play a critical role in informing and improving road safety research and ensure alignment with the Safe Systems Approach. These courses will be used to inform policy and generate road safety solutions within the African context.

Senior faculty members from the African Universities and EU University partners are leading candidate recruitment and collaborative development of appropriate curricula and pathways to completion. This with support from UN-Habitat being the lead of the capacity building project task.

Students and faculty from the EU and Africa are offered a real-world opportunity (applied research) to exchange knowledge and skills while working together on finding solutions on African road safety challenges.

TRANS-SAFE aims to support 8 PhD students; 6 from African regional universities and 2 from EU universities to be jointly supervised by both EU and African university faculty in the consortium. An important and unique legacy is the pool of PhD graduates trained in road safety, who can conduct road traffic safety investigations, which is a solid basis on which to build additional training to further develop the capacity within Africa.

Hybrid regional conferences and meetings shall be organised, preferably in-person, targeted at technical staff from government agencies, and students and faculty from the EU and Africa to exchange on road safety planning and engineering. Specialists in road safety planning and engineering with a wide understanding of the impact of road traffic crashes and what countermeasures can be used to prevent road traffic crashes and injury in the future.

7.1 AFRICAN UNIVERSITY RESEARCH IDEAS

The following research areas and topics have been identified by the African partner universities (Regional Centers of Excellence). The list is being updated on a continuous basis.

1. **The University of Rwanda**

The University of Rwanda (UR) is the best placed institution for cooperation and collaboration in different fields such as Medicine and public health, Agriculture, Education, Social Sciences, Business

and Economics, and Technology and Engineering including sustainable transport and logistics. In order to contribute to the milestones of the Government of Rwanda in the Transport industry, UR's College of Science and Technology has established the Center of Excellence (CoE) in Transport and Logistics that is involved in teaching, research and community outreach in areas of transport planning. Currently, some transport degree programs are already offered including Masters' programs in Transportation Engineering and economics, Highway engineering and management and Transportation engineering (only BSc).

Table 16: Proposed research programs by University of Rwanda

Proposed level	**Proposed Topics**
PhD	Study of the influence of non-motorized transport facilities in urban streets on pedestrian and bicycle-vehicle congestion crushes prevention
PhD	Local infrastructure safety management and planning enhancement using iRAP methodology and Highway Development and Management tool
PhD	Valuing Motorcycle Casualties in East Africa using Willingness-to-Pay Method: Stated-Preference Discrete Choice Modelling Approach.
PHD	System evaluation of Influence of road user's behaviour on road crashes at junctions and crossings in the City of Kigali.
PHD	Implementation research on Methods to improve post-crash care across a broad population of lay person responders.
PHD	In-depth investigations of PTW crash injury biomechanics, patient outcomes and the impact protection of a wide variety of helmet standards, conditions and methods of use
PHD	Economic analyses of innovative, digital road safety data collection and applications of findings to design and implement contextually tailored interventions in African countries.
PHD	Pre-arrival notification to emergency departments, implementation science for optimisation to improve patient outcomes and resource utilisation.
PHD	Impact of a district hospital intervention to improve post-crash care of open fractures in the first hour of arrival to decrease wound infections, osteomyelitis and disability
PHD	The case for Road safety improvements and investments in NMT infrastructure in African low-income countries as sustainable development methodologies

2. The University of Cape Town

The Centre for Transport Studies at the University of Cape Town has a long history of road safety research and has taken a leadership role in the region, supporting the development of road safety policies in South Africa, Lesotho, Botswana, Namibia and many sub-national contexts. The Center hosts a Non-Motorized Transport course every 2 years, which includes a strong focus on broader road safety challenges and hosts a course on Local Area Transport Planning in alternate years, with a strong focus on local road safety solutions.

Table 17: Proposed research programs by University of Cape Town

Possible level	Proposed Topics
Doctoral	Pedestrian interactions with African urban freeways – with SANRAL
Post-doctoral	Comparative study of road safety data management processes (links to UNIFI – In-AfroSAFE)
Doctoral	Analysis of professional driver behaviour – Using Uber/Discovery/Blue Dot telematics data
Doctoral	Micro-logistics and road safety –Helmets/Vehicle maintenance/Driver behaviour/Delivery time targets (with UoR)
Doctoral	Child road safety
Doctoral	Walkability/Stride/Her apps as a method of crowdsourcing road safety data

3. WEST AFRICA - AAMUSTED Ghana

AAMUSTED is a prestigious educational institution in Ghana, established in 2020. The mandate of the university among others is to provide higher education in technical, vocational, and entrepreneurial training to develop skilled manpower for job creation and economic development. The university is also mandated to develop strong linkages with industry to ensure holistic training.

With a comprehensive selection of over 100 study programs, AAMUSTED stands as one of the largest and most internationally recognized technical universities in the region. Situated in the heart of Kumasi, AAMUSTED caters to a diverse community of roughly 30 000 students.

The university's academic offerings encompass an exceptional range of study programs, uniting various disciplines under one roof. These areas of study include engineering and technology, economics and management, social sciences, humanities, agriculture and natural sciences, education and entrepreneurship. AAMUSTED's commitment to holistic education allows students to explore an array of subjects, fostering a well-rounded learning experience.

Table 18: Proposed research programs by University of AAMUSTED Ghana

Possible level	Proposed Topics
MPhil	Real-time Intelligent Traffic Management Systems: Develop AI-based algorithms and models to optimize traffic flow and reduce congestion, thereby enhancing road safety through real-time data analysis and adaptive traffic signal control
MPhil	AI-Enabled Road Safety Education and Awareness: Create interactive AI-powered tools and platforms to educate drivers, pedestrians, and cyclists about road safety practices and potential hazards
PhD	Integration of Advanced Technologies in Road Design: Explore the integration of emerging technologies such as connected and autonomous vehicles, intelligent transportation systems, and smart infrastructure to improve road safety.

7.2 EUROPEAN UNIVERSITY RESEARCH IDEAS

The following research areas and topics have been identified by the European partner universities. The list is being updated on a continuous basis.

1. **Technical University of Berlin (TUB)**

With over 100 study programs, TU Berlin is an institution steeped in tradition and one of the largest, internationally renowned technical universities in Germany. Roughly 35,000 students study here - a University of Excellence in the heart of Berlin. The range of study programs at TU Berlin is unique for a technical university, bringing together natural sciences and technology, planning sciences, economics and management, social sciences, and humanities under one roof. In the TRANS SAFE project, TUB is covering topics related to the safe roads and Multimodal transport incl. a focus on non-motorized transport, land use and multimodality (design and policy aspects), paratransit and electric mobility.

Table 19: Proposed research programs by TUB

Possible level	**Proposed Topics**
PhD	Resources in the frame of psychology of transportation

PhD	Integration of e-mobility: energy/ renewables, safety
Post-doc	Unit system for Road Safety: solution for training programs for road users
Masters	Indicators and monitoring of sustainable e-mobility transportation (including road safety aspect)
Topics/ Expertise	**Related Pillar of the Safe Systems Approach**
NMT, multimodality - design & policy aspects, paratransit, e-mobility	Safe Roads/ Safe System Approach

2. Universiteit Hasselt – (UHasselt)

Table 20: Proposed research topics by University of Hasslet (UHasselt)

Topics/ Expertise that can be cove	**Related Pillar of the Safe Systems Approach**
Behavioural interventions	- Safe road users
Conflict observation / linked with transport infrastructure.	- Safe road users
Educating professional drivers	- Safe road users
Educating professional drivers General mobility & traffic safety knowledge, based on Safe System approach	- Safe System approach (general)

3. Technische Hochschule Ingolstadt (THI)

Table 21: Proposed research topics by Technische Hochschule Ingolstadt (THI)

Possible level	**Proposed Topics**
Master Students or PhD Students	Assessment methods for vehicle safety
Master Students or PhD Students	Application of infrastructure-based sensors for improvement of road safety
Topics/ Expertise that can be covered	**Related Pillar of the Safe Systems Approach**
1. Assessment methods for vehicle safety a. passive safety with focus of crash simulation	- Safe vehicles

b. active safety with focus on advanced driver assistance systems	
2. Application of infrastructure-based sensors for improvement of road safety (e.g., automatic recognition of accidents)	- Safe Roads

4. **University of West Bohemia (UWB)**

Table 22: Proposed research topics by University of Bohemia

Possible level	**Proposed Topics**
PhD student	Personal protective equipment design
Topics/ Expertise	**Related Pillar of the Safe Systems Approach**
Simulation based design of personalized personal protective equipment	Safe Road Users

8. CONCLUSION

The Regional Centers of Excellence will play a critical role in the TRANS-SAFE project in delivery capacity building programmes with regional relevance. The project aims to facilitate exchange among the university partners within Africa, but also with the academic partners based in the EU who are part of the TRANS-SAFE consortium. Through the affiliation of the project with the Urban Living Lab Center, global exchange opportunities will be explored with university partners beyond the TRANS-SAFE consortium.