RESEARCH SERIES

FINANCING FOR DEVELOPMENT

BREAKING THE DEADLOCK

A SOCIAL IMPACT INVESTMENT LENS ON REDUCING COSTS OF ROAD TRAUMA AND UNLOCKING CAPITAL FOR ROAD SAFETY

SOCIAL FINANCE

Impact Strategist

FIA FOUNDATION

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The FIA Foundation is an independent UK registered charity which supports an international programme of activities promoting road safety, the environment and sustainable mobility, as well as funding motor sport safety research. Our aim is to ensure 'Safe, Clean, Fair and Green' mobility for all, playing our part to ensure a sustainable future.

The FIA Foundation Research Paper series seeks to provide interesting insights into current issues, using rigorous data analysis to generate conclusions which are highly relevant to current global and local policy debates.

Commissioned by: The FIA Foundation, 60 Trafalgar Square, London WC2N 5DS, United Kingdom
Written by: Tom Davies & Jane Newman for Social Finance and Regina Hill & Rosemary Addis for Impact Strategist

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TERMINOLOGY & ACRONYMS

ADB Asian Development Bank

AIP Foundation Asia Injury Prevention Foundation: a non-profit enterprise with the mission to provide life-saving traffic safety knowledge and skills to the developing world with the goal of preventing road traffic fatalities and injuries.

DFI Development Finance Institution

DIB Development Impact Bond

FSI Fatal and Serious Injuries

GDP Gross Domestic Product

GIIN Global Impact Investing Network

GRSF Global Road Safety Facility: World Bank facility with an emphasis on accelerating and reinforcing the capacity of low and middle-income countries to implement affordable road safety programmes.

GRSP Global Road Safety Partnership: global partnership administered by the World Bank of multi- and bi-lateral development agencies, governments, businesses and civil society organisations, creating and supporting multi-sector road safety partnerships that are engaged with front-line good practice road safety interventions in countries and communities throughout the world.

Impact Bonds (DIB/SIB) Impact Bonds: outcomes-contingent contracts between investors, service providers and outcomes funders. Investors provide upfront finance for a service delivered by a separate service providers (usually a social sector organisation or NGO), and an outcomes funder pays investors their principal plus a return depending on successful achievement of pre-agreed social outcomes.

The outcomes funder in a Social Impact Bond (SIB) is a government commissioner.

The outcomes funder in a Development Impact Bond (DIB) is a donor organisation (for example bilateral or multilateral donors or charitable Foundations).

iRAP The International Road Assessment Programme: a registered charity with the vision of a world free of high risk roads. iRAP provides tools and training to risk map and star rate the performance of road infrastructure for all road users and develop the associated investment business case to upgrade roads and save lives.

MBD Road Safety Initiative Multilateral Development Bank Road Safety Initiative: a shared program of seven multilateral development banks (for example African Development Bank, Asian Development Bank) to reduce the forecast level of road traffic fatalities worldwide, especially in low and middle-income countries.

NCAP New Car Assessment Programmes

OWG The Inter-governmental Open Working Group: a 30-member body of country governments, coordinated by the UN, tasked with determining the Sustainable Development Goals.

PIARC World Road Association (Permanent International Association of Road Congresses): international network to foster and facilitate global discussion and knowledge sharing on roads and road transport. The Association has 120 government members worldwide and retains consultative status to the Economic and Social Council of the United Nations.

PPP Public-Private Partnership

SDG Sustainable Development Goals: a proposed set of targets for global development, which build on the Millennium Development Goals and are intended to converge with the post-2015 development agenda.

Star Rating System iRAP measure of the level of safety provided by a road's design on a scale of 1 star to 5 star, where 5 is the safest. Star ratings are available for pedestrians, cyclists, motorcyclists and vehicle occupants.

TAC Transport Accident Commission: government-owned insurer in Victoria, Australia, to pay for the treatment and benefits of people injured in transport accidents, promote road safety and improve Victoria's trauma system.

UN United Nations

VicRoads Government body responsible for planning, developing and managing the road network in the State of Victoria, Australia.

WB World Bank

WHO World Health Organization

FOREWORD BY THE FIA FOUNDATION

2015 sees important processes which have the potential to advance the global road safety agenda. Road safety targets are expected to be included in the United Nation's new Sustainable Development Goals, with a specific stand-alone target in the Health Goal and action to reduce road traffic injuries and provide safe and sustainable transport integral to the Cities Goal. In November 2015, just weeks after the new SDGs are finalised, governments from across the world meet in Brasilia for the 2nd Global High Level Conference on Road Safety. A stated aim of the Brazilian hosts is to focus on practical implementation of the new SDG targets.

Practical implementation must include funding and financing preventive action. Road safety is primarily a national competency and a responsibility of governments and city authorities, and sustainable funding must include national sources. However, donors have a critical role to play. In many developing nations there is a need for catalytic financial and technical assistance to build capacity, design effective road safety strategies and set the machinery of government on a path to sustained casualty reduction. Targeted donor funding and investment could more effectively channel local spending. In a new report on global health spending, the Institute for Health Metrics and Evaluation estimates that, on average, developing countries spend around USD$20 for every $1 provided by international donors. No equivalent analysis has been done for road safety spending, in part because there has not yet been concerted focus on directing capital to the issue. It is overdue.

Both the injury burden and the new SDGs suggest that road safety should now be recognised as a priority for global public health. If we are to see increased international and country-level funding of road safety, donors and other investors, whether finance ministers, philanthropists or the private sector, will want to see clear evidence of the social impact of their investment.

This paper, by Social Finance and Impact Strategist, two of the leading pioneers of new innovative financing mechanisms, reviews the potential to bring the lens of social impact together with capital to deliver new sources of funding and finance for road safety improvements. This analysis points to the potential and work ahead to improve the metrics by which we measure the cost-effectiveness and impact of road safety interventions – particularly in relation to direct attribution of road safety measures to improved health outcomes and reduced health sector costs; and above all to 'break the deadlock' of unimaginative silo thinking which, for example, designates safer road design as a 'cost' without properly calculating or allocating its benefit to human health. This report argues that, by applying private sector investment disciplines and expectations to public sector social goods, we may be able to achieve this breakthrough in thinking and practice towards revolutionising the way road safety is understood as a long term health investment.

The SDGs, unlike their predecessor Millennium Development Goals, will be universal – applied to all countries. An important message of this report is that the lessons and benefits of Social Impact Investment are potentially as applicable, if not more so, to the strategies of high income countries with good road safety performance as they are to guiding donor investment in a low-income developing nation context.

There is no room for complacency. The recent up-tick in road traffic casualties in the European Union demonstrates this is as true of developed markets as it is of the need to respond to rising road deaths and serious injury in rapidly motorising developing nations. Innovation is needed to advance the road safety agenda, embed the 'safe system' approach and bring forward funding and investment for that task. Transparently linking investment to health outcomes, through 'payment for success' approaches, can engender new understanding and build new alliances for road traffic injury prevention.

This paper highlights opportunities, but also identifies some gaps in both data and delivery capacity that will need to be filled before the real social investment potential of road safety interventions can be properly measured and realised. The FIA Foundation hopes the report can spark a conversation between road safety practitioners, public authorities, private and philanthropic finance, and some of those working on the new frontiers of social impact investing. We hope that conversation can begin a journey, and that the ultimate destination will be safer roads for all. We look forward to playing our part.

EXECUTIVE SUMMARY

More than three thousand preventable deaths and many thousands of serious injuries from road trauma occur every day. More than 1.2 million people currently die on the world's roads each year,[1] with an estimated cost of 2-3% of global GDP.[2] Road fatalities are projected to increase to almost two million by 2020 unless substantial efforts to improve road safety are implemented.[3] The toll is highest in developing countries, where new motorisation is rapid and more than ninety percent of fatalities occur. [4]

The social and economic consequences are so significant that road safety has been recognised in the United Nations (UN) sponsored Decade of Action for Road Safety and the draft Sustainable Development Goals (SDGs)[5] as a priority public health issue. If unaddressed, it threatens to impede sustainable development and hinder progress.[6]

The actions needed to improve road safety are well understood: build safer roads, improve vehicle safety, reduce speeds and encourage safe road user behaviour. Significant analysis has gone into attributing economic value to the effect these 'safe system' interventions can have on reducing crashes and the severity of their consequences. Still, there are major gaps in capacity to deliver the elements for safety in many countries and, critically, in the evidence base that can unlock those elements at scale.

Similarly, significant investment each year goes into building and maintaining road infrastructure and meeting the costs of road trauma. Yet, there are significant challenges to directing capital into prevention at the scale required to meet the road safety goals set by the international community. Despite pockets of leadership and a range of initiatives underway across the globe, a step-change is needed in the approach to allocating funding and investment to road safety.

Social impact investing provides an exciting option to 'unlock' the benefits of improving road safety: it can prove concepts, prioritise data collection and a multi-stakeholder approach, laying the foundations for larger scale commercial structures. This will require clear identification of elements of the social and financial cost and benefit, not yet captured in most current data and models.

The focus of this paper is to set those foundations for how funding and finance can be directed more consistently to creating safe systems. There are three key sections: The need and imperative for action on road safety; the potential of social impact investment; and how these can be brought together to build the case for investment in road safety and map a way forward.

The '5 steps to action' are a concrete basis from which to deliver greater and more timely investment in improved road safety.

1. Develop targeted case studies to better understand what existing data can tell us.
2. Identify projects currently in development to serve as a demonstration of how a social impact investment approach could be applied in the road safety context.
3. Design a methodology and toolkit for collection of data.
4. Use the imperative of the Decade of Action and focus on road safety in the Sustainable Development Goals to gain multi-stakeholder commitment and resources to develop the evidence base.
5. Develop a roadmap to progress from concrete illustrations of the complex ideas involved in investing in safe systems to advocate for and develop options that will deliver change at scale.

This action oriented agenda is an invitation to stakeholders to contribute to unlocking early opportunities and building the foundations for bold and more aspirational leaps toward scale - and a safer future.

THE NEED FOR ACTION ON ROAD SAFETY

The scale of the problem

More than 1.2 million people die on the world's roads each year.[7] Those figures are projected to increase to almost 2 million by 2020 with the rise in global economic development and accompanying motorisation, unless substantial effort is made to improve road safety and deliver sustainable transport choices.[8]

The economic cost of dealing with the consequences of road trauma already runs into 100's of billions of dollars each year[9] and the social cost is equally high. Beyond the health and human impacts, failure to improve road infrastructure has an environmental and commercial cost. The costs fall on a range of parties. They are borne by governments through the provision of emergency, health and welfare services as well as through the loss of taxation revenue. They are borne by families and communities who have to deal with loss of life and with serious injury and by social and development organisations providing services. They are borne by corporations through lost productivity and premiums for workers' compensation and property related insurance and by the insurers who meet the cost of claims.
It is estimated that the cost of road trauma (including both fatalities and serious injuries) equates to approximately 2% - 3% of global GDP per annum.[10] Over a twenty year period those costs have been estimated to equate to USD$1,860bn.[11]

While the impacts of road trauma affect all countries, the incidence of fatal and serious injuries (FSIs) is disproportionately high in the less developed parts of the world,[6] with over ninety percent of fatalities occurring in low to middle income countries.[13]

There have been substantial reductions in road traffic FSIs in recent decades in most high income countries, particularly when compared to the developing world. This reflects the introduction of road safety initiatives focused on improved road management, safer roads and roadsides, safer vehicles and safer road users. However, there is still significant need for improvement. Also, rising healthcare costs in those countries mean that the economic cost burden of traffic trauma remains high at an estimated 1% – 5% of GDP per annum.[14]

While the number of FSIs is higher in developing countries, the estimated economic cost per fatality and serious injury is lower. That reflects the lower availability of, and expenditure on, post-crash medical treatment and care and lower average income levels. As a proportion of GDP, however, the economic burden of traffic fatalities and serious injuries is higher in less developed parts of the world, averaging approximately 5% of GDP per annum.[16]

There are a range of factors that contribute to the higher number of FSIs in developing countries, including poor road infrastructure, the failure to effectively separate pedestrian and vehicle traffic flows, lack of footpaths and other infrastructure for pedestrians, reliance on older, lower safety standard vehicles, motorcycles and mopeds, the lower adoption of safety practices such as wearing helmets and poorer post-crash emergency and medical treatment services.

Ironically, these issues are often exacerbated by economic growth, which results in increased investment in road infrastructure to reduce travel times and increased, higher speed, road usage. In the absence of well targeted road safety protocols and programs, this translates into higher road trauma.

If current trends continue it has been estimated that road traffic deaths could grow to become the third leading cause of death globally by 2030.[17] The economic implications of that over the next fifteen years will be significant across the world, and felt particularly keenly in the developing world.[18]

FIGURE 1: THE SCALE OF THE ROAD SAFETY PROBLEM[15]

COUNTRY INCOME CATEGORY:	LOW	LOWER MIDDLE	UPPER MIDDLE	HIGH	ALL
Number of countries	33	49	47	49	178
CURRENT SITUATION					
Annual fatalities (per 100,000 pop)	128,000 (20.2)	494,000 (18.0)	509,000 (17.8)	94,000 (8.7)	1,225,000 * (18.1)
Annual fatalities and serious injuries (FSI)	1,408,000	5,434,000	5,599,000	1,034,000	13,640,000
Annual cost of FSI (USD)	$20 billion (5% of GDP)	$200 billion (5% of GDP)	$780 billion (5% of GDP)	$850 billion (2% of GDP)	$1,860 billion (3% of GDP)

BOX 1:

THE US DEPARTMENT OF TRANSPORTATION ROAD ACCIDENT DATA

Analysis indicates that approximately 33,000 people were killed and 3.9 million were injured in motor vehicle crashes in the US in 2010. The economic cost of those crashes has been estimated to be USD$242bn or approximately USD$784 per capita. That equates to approximately 1.6% GDP. When quality of life considerations are taken into consideration the estimated cost increases to USD$836bn.

Source: NHTSA, USDT 2015.

US Transportation Secretary Anthony Foxx is prioritising infrastructure safety improvements

Safe systems approach

The scale of the road safety problem is well understood, as are the types of crashes causing death and serious injury, the types of factors contributing to them and the solutions required to address them.

The majority of crashes involving FSIs are run-off road, head-on, intersection or impact to vulnerable road users moving along or crossing the road.[19] While road user behaviour is a factor in many crashes, safe road and roadside design can play a significant role in reducing road trauma. Engineering-based infrastructure solutions can prevent the majority of all crash types. Investment in this, combined with other regulatory, vehicle and behaviour based responses has the potential to substantially reduce road trauma and the associated economic and social costs.

Some countries, for example Sweden and Australia, have started to work towards implementing more integrated 'safe system' approaches to improve road safety.[20] The value of applying such an approach is generally accepted and is reflected in global initiatives such as the Decade of Action, however application of safe system approaches is still in its early stages.[21]

Safe system approaches recognise that human error is inevitable and aim to create a road transport system that makes allowance for user errors and minimises the consequences, in particular, the risk of death or serious injury.

BOX 2:

SAFE SYSTEM THINKING

Safe system thinking takes a holistic approach to minimising the risk of death or serious injury on the roads by taking into account the interaction between roads, vehicles, speeds and road users.

While people are fallible and often do make mistakes on the road, road trauma should not be accepted as inevitable. Within the safe systems model, if a mistake is made on the road the impact is reduced or negated by:

- Safe roads and roadsides
- Safer speeds
- Safer vehicles and
- Safer road users (behavior)

In a road crash, the amount of force a person can absorb depends on the amount of protection they have. This protection is increased when we work within the rules of the safe system.

Injury severity and/or the consequences of it in terms of ongoing impairment can also be impacted by the timeliness and effectiveness of the post-crash response (e.g. in terms of the timeliness and effectiveness of emergency services, treatment and rehabilitation, etc.)

Safe system planning and implementation involves the use of a range of road safety interventions including regulation and enforcement, safe road and roadside infrastructure design, construction and maintenance, vehicle and product design, road user awareness and education programs and emergency and post-crash service system improvement.

Source: http://www.tac.vic.gov.au

The safe system approach takes a holistic view of the factors involved in road safety, identified in 5 key domains:

- **Designing and maintaining safer roads and roadsides** that will reduce the likelihood and severity of vehicle and motorcycle crashes and reduce the risk of incidents involving pedestrians and cyclists;
- **Promoting the development and use of safer vehicles** to reduce the incidence of vehicle crashes and mitigate the severity of road user injury;
- **Managing speed limits** to reflect the safety risk to the road users;
- **Encouraging road users to adopt safer behaviours** and safe user practices, including compliance with speed limits and drink driving regulations and correct seat belt and helmet usage; and
- **Improving post-crash responses**, including emergency service responses and post-crash treatment, rehabilitation and care.

Graduated or tiered licensing regimes have also been established in a number of countries to promote driver safety by requiring new drivers to build their skills over time before being issued with a full or open licence. Specific training requirements are often also applied to large scale transport (for example, bus) and heavy vehicle drivers.

The elements of safe system thinking lend themselves to different types and combinations of interventions, including road management and infrastructure, vehicle and product innovation, regulation and enforcement, and education and awareness building initiatives.

In developing markets, consideration is also being given to the improvement of emergency post-crash response systems, including the provision of emergency services (for example, police and ambulance services) and medical and rehabilitation services to improve post-crash survival outcomes.[22]

FIGURE 2: KEY PILLARS OF ROAD SAFETY IDENTIFIED BY THE WORLD HEALTH ORGANIZATION [23]

PILLAR 1	PILLAR 2	PILLAR 3	PILLAR 4	PILLAR 5
Road safety management	**Safer roads and roadsides**	**Safer vehicles**	**Safer road users**	**Improved post crash response**
• National road safety management stragegies and plans • Structured data collection • Tiered licensing systems • Speed limits aligned to safety risks • Regulations and enforcement regimes relating to safe road user behaviour	• Safe road and roadside design and construction • Upgrades to existing infrastructure	• Safe vehicle development • Regulations and incentives to encourage the purchase of safer vehicles and improve vehicle maintenance	• User awareness and education campaigns to encourage the adoption of safe user behaviour and encourage compliance with safety related regulations	• Improved emegency response services • Increased access to quality post-crash medical treatment and rehabilitation

IMPROVING ROAD INFRASTRUCTURE

Governments and development banks are beginning to build safety requirements into contracting arrangements for road construction, improvement and maintenance. For example, some contracts include a requirement that roads be constructed to minimum safety or 'star rating' standards.[24] Star ratings are based on road inspection data and provide a simple and objective measure of the level of safety which is 'built-in' to the road for vehicle occupants, motorcyclists, bicyclists and pedestrians. Under this 'five-star' system, five-star roads are the safest while one-star roads are the least safe.[25]

Minimum safety requirements are also being built into some toll road construction projects and in some cases penalty provisions linked to the incidence of FSIs have been built in to incentivise toll road operators to focus on road safety as part of their ongoing management strategy.[26]

In an innovative approach a public transport accident insurer in Victoria, Australia, the Transport Accident Commission (TAC), has also funded a range of corridor upgrades based on targeted star rating improvements and projected FSI reductions.[27]

Overall, however, benchmarking and performance targets are incorporated in a relatively small proportion of the USD$500bn of arrangements globally for infrastructure funding and maintenance.[28]

IMPROVING ROAD USER BEHAVIOUR

Like campaigns by worker compensation insurers, campaigns have also been used to encourage companies to implement road safety initiatives to reduce the occupational health and safety risk posed to their workforce. In some cases governments and insurers are applying an employer road safety levy to contribute to road incident related employee compensation costs.[29]

Some behavioural initiatives have been more broadly based. For example, the TAC has funded a range of education and awareness building campaigns aimed at influencing driver behaviour. Other initiatives have targeted take up of specific safety measures such as wearing helmets and seat belts.

IMPROVING ADOPTION OF SAFER VEHICLES

Minimum vehicle safety standards are being built into some government and corporate car fleet procurement practices and safe user requirements are being incorporated in occupational health and safety training and insurance protocols.

The new management system standard for road safety (ISO 39001) encourages companies and organisations to use consumer testing information from independent New Car Assessment Programs (NCAPs) to "assist them in making informed decisions about the level of safety they seek in vehicle fleets."[30] The Australian

and Swedish Governments and major companies such as BHP Billiton[31], Shell and Johnson & Johnson are now requiring minimum four or five star safety ratings in their fleet procurement policies.[32]

Dimensions of safe system benefits

In addition to safety benefits, safe system improvements can deliver a range of additional economic, environmental and associated quality of life benefits or cost savings. This is particularly applicable for improvements to road infrastructure, vehicle quality and reducing congestion and road usage. Examples of these wider benefits include:

- Improved economic efficiency and productivity relating to reduced congestion and improved transit conditions and times and associated reductions in product loss and wastage;
- Reduced vehicle and infrastructure maintenance and replacement costs due to improved infrastructure and vehicle quality; and
- Reduced greenhouse gas emissions.

Identifying the range of benefits of safe systems, including reduced road trauma, more explicitly points to a broader range of beneficiaries - parties who may currently be bearing costs of less than optimal approaches. Identifying those parties opens a correspondingly broader pool of potential funders and investors than the current parties predominantly charged with meeting the cost of road infrastructure and safe system interventions, for example a range of corporate investors and insurers.

BOX 3:

EXAMPLES OF APPLICATION OF SAFE SYSTEMS TO ROAD INFRASTRUCTURE

EXAMPLES OF PERFORMANCE STANDARDS FOR SAFER ROADS

Highways England: (the public company responsible for operating, maintaining and improving the public road network) has adopted a 'no-one should come to harm on our network' vision and a target for ninety percent (90%) of travel to be on 3 star or better roads by 2020 with the objective of achieving a 40% reduction in FSIs by 2020 compared to 2010 levels.

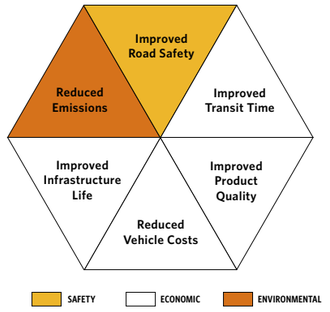
Mexican Road Authority (SCT): has recently assessed over 60,000km of roads and has implemented targeted maintenance spending to reduce 1 and 2 star road sections by approximately twenty percent (20%).

Slovak Motorway Corporation: has announced that it will be investing approximately €100m over two years to raise the star safety ratings across a number of high risk road corridors.

Development Finance Institutions (DFIs): *Asian Development Bank (ADB)* has integrated road safety star rating performance targets into their Sustainable Transport Project Appraisal Rating. ADB has also applied a star rating approach to projects in China where targeted improvements are being linked to targeted reductions in FSIs. The *Multilateral Development Bank (MDB)* Road Safety Initiative identifies road safety ratings as one of the factors to be considered in assessing road infrastructure projects. The *World Bank* has developed a framework for national road agencies to help them to develop prioritised road investment programmes to work towards achieving at least 3 star safety rating for all road users. Together with governments it funds, the Bank has applied minimum star rating standards to projects in Karnataka, Assam, Gujarat and Kerala in India. Improvements in road standard and reductions in FSIs pre- and post-improvement have been monitored and tracked as part of the project.

Source: Highways England 2015., p.4; SCT 2013; iRAP 2015., p.17; http://www.adb.org/publications/toward-sustainability-appraisal-framework-transport MDB 2014; Small & Runji 2014; The World Bank; iRAP 2015, p.16; Smith & Zhang 2014.

FIGURE 3: WIDER BENEFITS OF SAFER ROADS



BENEFIT CATEGORY	SOCIAL BENEFIT	ECONOMIC BENEFIT
• Improved Road Safety	• Reduced FSI • Improved health and quality of life	• Reduced incident, injury and depedency related costs • Increased taxable income and GDP
• Improved Transit Time	• Reduced transit time • Improved product availability and reduced costs • Improved quality of life	• Reduced time to market • Improved productivity • Reduced transport costs and costs of goods sold
• Improved Product Quality		• Reduced wastage and cost of goods sold
• Reduced Vehicle Costs		• Reduced vehicle maintenance and capital (re)investment costs and cost of goods sold
• Improved Infrastructure Life	• Increased access to road infrastructure	• Reduce lifetime capital investment and maintenance costs
• Reduced Emissions	• Improved health and quality of life	• Reduced pollution

The imperative for action

The road safety issue is of such significant scale that it has been recognised as a global priority, including for public health which, if unaddressed, may affect the sustainable development of all countries and hinder progress in developing countries.[33]

The imperative for action is well recognised. In May 2010 the United Nations announced a Decade of Action for Road Safety with the goal of "stabilising and then reducing" global road traffic fatalities by 2020. The goal is to reduce the forecast 2020 level of road deaths by fifty percent, from 1.9 million to under one million a year through the adoption of national, funded, road safety strategies comprising road safety initiatives across the five pillars of the safe system, as set out in the UN-backed Global Plan.[34] Achieving the 2020 target could save up to five million lives and prevent 50 million serious injuries.[35]

Road safety issue is recognised as a major global issue in the most recent draft of the universal Sustainable Development Goals (SDGs) and as a key indicator of personal safety as a basic human need in the Social Progress Index designed to sit alongside GDP.[36]

The draft SDGs prepared by the inter-governmental Open Working Group currently include three specific goals focused on reducing road trauma and improving the quality, reliability and safety of road infrastructure.

Identifying critical challenges and gaps

If the importance of acting and the interventions to reduce road trauma are understood, what are the critical gaps to action that can achieve and accelerate progress?

One factor inhibiting progress is that costs associated with road trauma are currently borne by a different set of stakeholders than those with responsibility for designing and delivering roads, or even safe system improvements.

Another factor is that the economic analysis generally does not identify the specific benefits that would be attributable to different parties if more and more effectively targeted action was taken to improve road safety; and the data to create an evidence base for that more specific cost benefit analysis does not yet exist in any systematic way. Implementation capacity, particularly in developing countries, is also a practical limiting factor.

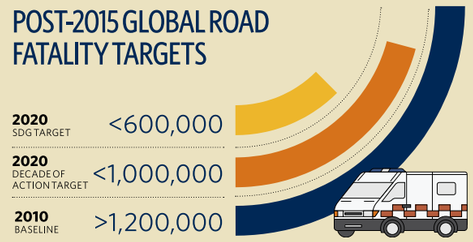
BOX 4:

ROAD SAFETY AND SUSTAINABLE DEVELOPMENT GOALS

SUSTAINABLE DEVELOPMENT GOALS (SDGS)

Goal 3.6: By 2020, halve the number of global deaths and injuries from road traffic accidents.

Goal 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and trans-border infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all.



Goal 11.2: By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons.

Source: https://sustainabledevelopment.un.org/focussdgs.html

SCALE: THE SIZE OF THE INVESTMENT TASK

The investment task required to meet the SDG target of halving deaths and serious injuries will be significant. iRAP has estimated that if the world wants to eliminate the 10% of 'highest risk' roads through safer infrastructure design alone the road infrastructure investment task could amount to more than USD$680bn over the next twenty years. It is estimated such an investment would deliver a cost saving of USD$5,715bn, an USD$8 return on every dollar invested, before taking account of aligned or ancillary economic and environmental and associated quality of life benefits and savings.[37]

While substantially less than the estimated cumulative cost of road trauma, securing investment on this scale is no doubt a significant challenge.

Some of those funds will be covered by prospective government and development bank investment. However, without additional capital, from both greater leverage of the available funding and bringing forward some spending being allocated to cover remedial costs associated with road trauma, this scale of investment is unlikely to be achieved.

DATA: BUILDING THE EVIDENCE BASE

There is a lot of data on road safety and safe systems. There is significant data on the economic and social costs and consequences of road trauma and unsafe systems. Where such data is collected systematically, for example by organisations such as the TAC, it has already provided an economic cost benefit case for significant funding for safe systems.

However, the volume of available data and the considerable ongoing work that is being done to capture it masks important gaps. There is an absence of concrete data which tracks the impact of specific interventions in specific places that demonstrates better outcomes, both over the short term and longitudinally. There is also a need for data at a more granular level that clearly demonstrates who bears the costs due to safe system deficiencies and what the benefit could be for those parties if they, and others, were to contribute more to prevention.

Without that granular data, a critical element to inform decision-making is missing. Neither value for money and impact of new funding of specific interventions

FIGURE 4: THE POTENTIAL BENEFIT OF INVESTING TO ADDRESS THE ROAD SAFETY PROBLEM [38]

COUNTRY INCOME CATEGORY:	LOW	LOWER MIDDLE	UPPER MIDDLE	HIGH	ALL
Number of countries	33	49	47	49	178
WHAT COULD BE ACHIEVED					
Improve 10% of roads	108,000 km	610,000 km	992,000 km	1,546,000 km	3,255,000 km
Builid viable countermeasures	$8 billion	$61 billion	$149 billion	$464 billion	$681 billion
Reduction in fatalities	384,000	1,483,000	1,528,000	283,000	3,678,000
Reduction in fatalities and serious injuries	4,224,000	16,313,000	16,808,000	3,113,000	40,458,000
Economic benefit	$83 billion	$663 billion	$1.766billion	$2.202 billion	$5.715 billion
Benefit cost ratio	11	11	19	5	8

can be assessed, nor how to set the risk adjusted return for an investment which is wholly or partly based on the outcomes delivered.

Developing the evidence base with appropriately designed data sets will also assist in tackling other challenges to attracting investment, not least the time lag from when the investment is required to when the benefits are fully realised. Appropriate data could also demonstrate shared interests across a range of potential funders and investors to underpin the case for co-investment initiatives.

CAPACITY: THE IMPLEMENTATION TASK

Capacity is another very practical challenge to be met for road safety objectives to be achieved. This includes available data and skilled resources to collect appropriate data in addition to building capability within many governments to help them to understand and apply safe system principles, to strengthen regulatory, licensing and enforcement frameworks and to scope and implement road improvement and road safety projects.

The need for capacity building support for developing countries has been recognised in UN resolutions, in the Global Plan for the Decade of Action, and through the work of the Global Road Safety Facility and donors such as Bloomberg Philanthropies. There are many relevant reports and tools available demonstrating the wealth of knowledge and experience that can be brought to bear on the road safety problem. In the area of safe road infrastructure, for example, these include iRAP's Road Safety Toolkit and associated road infrastructure assessment protocols and technical guidance from the World Road Association (PIARC) and the International Road Federation.

Program design coupled with targeted data collection could develop a more cogent case for the links between capacity development and achievement of improved road safety outcomes through safe systems. The use of common global reporting metrics can also provide an opportunity for countries and development agencies to better benchmark performance and target action.

Meeting the challenges

Despite the good work and the range of initiatives underway across the globe, a step-change is needed in the way investment is allocated to road safety. This must include an assessment of how traditional sources of funding could expand or be re-oriented in a way which draws in other sources of capital and types of investment. This will need to include re-alignment of incentives for other economically interested parties who could, or should, consider road safety funding because of the net benefit they will derive from it to act on that interest and invest in safe systems.

BUILDING THE CASE FOR INVESTMENT IN ROAD SAFETY

There is a clear need to turn the increased focus that road safety is receiving as a result of the Decade of Action and the imminent SDGs into funding and investment.

Sources of funding and finance do exist, particularly for road infrastructure, but that capital is either not yet being directed to prioritise achievement of the safety goals agreed by the international community or it falls a long way short of what is required to meet those goals.

Shining a light on who currently bears the cost of road trauma and the relative benefits of more up front commitments to road safety could provide a critical 'missing piece' to attract new and different types of capital and enable funding and financing models that prioritise safety outcomes to be designed and implemented.

Unlocking that capital for road safety requires clear identification of:

- who benefits, that is, where the costs associated with road trauma lie, and what incentives there are for parties to avoid them by investing in road safety initiatives;
- what funding and financing mechanisms are fit for purpose for the given project or intervention; and
- what the pre-conditions for success are in terms of being able to apply those mechanisms effectively.

Backed with the relevant data, this type of analysis would contribute new information that links costs with particular parties, some currently outside the traditional partners in road infrastructure investment and other elements of road safety. It gives a line of sight to which parties have a direct financial interest in improving road safety or an indirect interest in reducing the associated trauma and costs.

Without such analysis, the argument for more up-front investment in safe systems is simply that a particular party 'should' invest because there is an overall benefit to society and the economy. This is in part due to the fact that the majority of road safety analysis is currently based on data held at an aggregated level across road systems and in some respects is based on societal level costs and benefits rather than relating to particular interventions or effects. Such an argument is therefore not sufficient on its own to move the amount of investment needed.

Who benefits? Unpacking the cost dimensions of road trauma

In theory, identifying where the costs of road trauma fall should be relatively straightforward. In practice it is more complex. Beyond the individuals and families directly impacted by individual road crashes, direct and indirect costs are borne by a range of parties, including government, insurers, employers and other road users.

In order to achieve greater clarity on the relevant costs and on whom these costs currently fall, more and different data is required. The costs of road trauma are often divided into three major components:

- direct costs - associated with emergency services responding to accidents, medical, paramedical and rehabilitation expenses and legal and insurance administration related costs;
- indirect costs - associated with premature death, permanent impairment or temporary absence from work caused by crashes borne by injured parties or their family, dependents or carers; and
- economic valuations - particularly of lost quality of life.[39]

There are some challenges in capturing and measuring a number of these cost components. In particular, variation in the level and quality of data that is collected on matters such as:

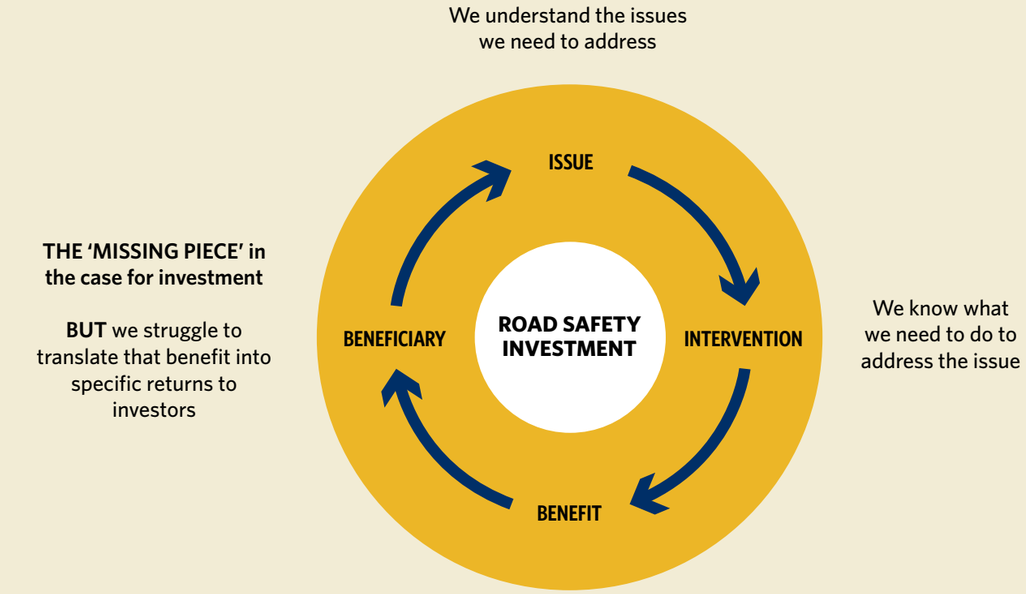
- location, incidence and severity of road crashes, the number of people that are injured and the severity of their injuries;
- immediate and longer term costs incurred in treating injuries;
- indirect costs incurred in terms of foregone income and taxation and incurred welfare, carer and dependency costs; and
- variations in the methodology applied in different markets to give an economic value to lost quality of life.

There are also challenges in attributing particular interventions to improved outcomes.

Gaps in data currently typically extend to: requiring a detailed understanding of what data is available, particularly at a local level, what is measured, by whom, how, for what purpose and over how long a period. There is also often a lack of clarity around how interventions are measured, which in turn impacts on the reliability of 'evidence' of its effectiveness. Clarity in the attribution of outcomes to particular interventions is also needed, that is, whether achieving the desired outcome is due to the intervention and not to some other external factors.

These gaps impact on the ability to demonstrate a clear link between lack of safe systems and specific costs, and, correspondingly, between safety interventions and reduction of particular costs.

FIGURE 5: THE 'MISSING PIECE' IN THE CURRENT CASE FOR ROAD SAFETY INVESTMENT



THE 'MISSING PIECE': LINKING COSTS TO OUTCOMES

Building an evidence base that informs understanding of the range of stakeholders that benefit from a reduction in road trauma and how they benefit could help to meet these challenges.

This could include development of protocols and tools for collection of relevant data, including for the specific types of costs relating to road crashes. A robust data set that breaks down those costs (for example by category as illustrated in Figure 6) would inform a clearer picture of which costs relate to different stakeholders, which are publicly and privately incurred and which are insured and uninsured.

FIGURE 6: MAKING COST PROFILES OF ROAD TRAUMA CONCRETE

STAKEHOLDER	EMERGENCY SERVICES	HEALTH	INCOME	DEPENDENCY	PROPERTY	ADMINISTRATION
GOVERNMENT	• Police and emergency service response costs	• Uninsured public hospitalisation and allied health or medical costs	• Loss of GDP and taxation revenue	• Welfare (safety net) payments to injured parties, dependents and carers	• Infrastructure repair and remediation costs	• Welfare administration costs
INJURED PARTIES AND THEIR FAMILIES, DEPENDENTS AND CARERS	• Uninsured ambulance costs	• Uninsured funeral costs • Uninsured private medical and paramedical costs including rehabilitation • Uninsured pharmaceutical aids and equipment costs	• Uninsured loss of income (including carer income)	• Uninsured dependency and carer costs	• Uninsured vehicle repair and replacement costs	• Uninsured legal costs
INSURERS	• Insured ambulance costs	• Insured funeral costs • Insured medical and paramedical costs including rehabilitation • Insured pharmaceutical aids and equipment costs • Compensation for pain and suffering/ impairment	• Income insurance payments	• Life and dependency insurance payments	• Insured vehicle repair and replacement costs	• Insurance claims administration and legal costs
CORPORATE TRANSPORT NETWORK USERS AND EMPLOYEES	• Uninsured ambulance costs	• Uninsured worker related funeral and medical and paramedical costs including rehabilitation • Uninsured pharmaceutical aids and equipment costs	• Workplace disruption • Loss of income/ productivity • Recruitment and (re)training	• Uninsured dependency and carer costs	• Uninsured vehicle repair and replacement costs	• Uninsured legal costs

This type of approach could be designed to capture variations in the costs and who bears them, within and between different countries. Differences in the cost burden and its distribution are likely to be particularly acute between higher income and lower income countries. Variables include the level of services and support provided to help injured parties and their families recover from road trauma. For example, in the case of less developed lower income countries, where taxation and welfare or safety net provisions are lower and insurance coverage is more basic, the direct cost to government and insurance related interests is likely to be lower and more of the cost burden is likely to rest with the injured party and their family.

If implemented across different countries and different types of interventions, such a data set would shape a dynamic picture of those parties with an incentive to see increased road safety investment and could help build a compelling case for change.[40]

Optimally, this work would be designed in a way which will shape an internationally valid methodology, drawing from and enhancing existing methodologies and data. Not only would that result in a meaningful evidence base over time, demonstrating the impact of particular interventions and enabling the impact and cost to be compared across contexts; with such an evidence base, more streamlined and efficient feasibility and cost benefit assessment of investment opportunities for road safety become a real possibility.

The work ahead can be informed by further interrogation of existing data sets. For example, taking a disaggregated view of data which is currently held on an aggregated basis to provide a more granular analysis of costs and identify remaining gaps.

Similarly, an analysis of data collected for studies on specific interventions, such as those focused on helmet and seatbelt wearing, would reveal how far the data that is currently being collected can inform investment model design. It would also show whether there is a need to adapt what is collected and how in order to develop an investment case. It is important to note that systems designed for monitoring and evaluation of programmes will typically require greater rigour if the results are also to underpin investment.

Work on the direct effects of road trauma on families and communities could also be updated and shaped to bring into frame the impact on household income, educational attainment and wider social and health issues amongst other members of affected families and, in consequence, demonstrate the relevance of early, pre-crash, intervention. This could build on studies of the economic impact of road traffic injury on 'working poor' and middle class families in India and Bangladesh[41], Mexico[42], Myanmar[42] and South Korea[44]. that shed light on consequences of road deaths and trauma, ranging from medical and funeral costs to job loss, that push families into, or further into, poverty.

The combined effect of filling in the 'missing piece' on costs, building the evidence base and relating the new data to a broader group of potential funders and investors will assist with articulating:

- the nature of the intervention and the connection (if any) that the prospective investor has to it;
- the extent to which the specific outcomes and benefits derived from the intervention can be demonstrated;
- the projected financial return associated with the investment; and
- how each of these affects the risk profile of the proposed commitment or investment, including in relative terms.

These are central issues that different types of funders or investors will assess to varying degrees in making allocation and investment decisions.

LINKING APPETITE AND INTERESTS WITH ACTION ON ROAD SAFETY

Analysis of which parties will benefit from a safer system could also be mapped against elements of the safe system approach in which they have most interest. This type of approach (Figure 7) will also help identify whether the interest of a particular party in a particular intervention is direct or indirect and how the interests of different parties relate to one another.

Segmenting prospective funders and investors

Once the pool of parties with direct and indirect financial interests has been identified, that information can be mapped. Parties who may have an interest in the social outcomes that they are prepared to back with funding or investment can also be added to the map.

DIFFERENTIATING FUNDERS AND INVESTORS

In broad terms, capital for road safety interventions can come from funders or investors:

- Funders provide the capital directly for projects based on the benefit to them or to society, and do not receive a direct financial return.
- Investors provide capital on terms that include risk adjusted financial rate of return and may also be motivated to varying degrees by the potential for improved social outcomes from improved road safety.

These groups often control different types of capital and will be motivated by different priorities and accountable to different stakeholders. An important question is: who is best placed to fund and/or finance what? To some extent this is a function of investment appetite. Some funders and investors will be influenced by the nature of the issues and interventions. Some will be influenced by their own constraints such as public accountability, mandate boundaries, investor discretion, asset allocations and their policies on funding or investment.

These differences in priorities and risk appetite can be used to good effect to identify which funders and investors are best placed to play what role. For example, philanthropic foundations may be willing to fund scoping or feasibility studies and also have an important role to play in local capacity building, but may not be able or not wish to make investments, particularly at scale, from their own capital base.

Funders

The primary funders, particularly for road infrastructure, receive a direct benefit that provides the rationale for the cost involved. They may be public sector beneficiaries such as government, or private sector beneficiaries such as insurance companies or transportation companies.

Other funders may have a direct mandate that aligns with road safety. This could include donor organisations and Development Finance Institutions (DFIs), philanthropic trusts and foundations and non-government organisations. Many such agencies are already paying for remedial interventions to address the costs of road trauma and so they may be amenable to redirecting funding to prevention rather than remediation based activities.

The TAC is an example of a non-governmental funder of safety interventions, including safer roads, that directly benefits from investment in safer roads (Box 5). They work collaboratively with other bodies in the road management value chain, particularly VicRoads who plan, develop and manage the road network in the state of Victoria, Australia. While safety is critical to the TAC's mission of making 'every journey a safe one', the case for direct funding is grounded in its direct financial interest in reducing road trauma. This reflects an evidence based cost benefit analysis and a minimum Benefit Cost Ratio of at least 3:1 for any particular project.

Investors

A range of investors may be interested in the potential of investment that improves road safety and reduces road trauma. These investors are not one homogenous class. They will have different expectations of return and appetite for risk, and investment mechanisms will also need to be structured to meet their particular requirements.

Some lenders are already providing finance for specific road safety purposes. For example, the World Bank loan to Argentina to develop road safety systems and capability and the Global Road Safety Facility (Box 6). Current funders that control capital may view complementary investment as a way of increasing their impact, making a greater capital contribution and attracting other investors by signalling their interest and being prepared to lead. For example, foundations or development institutions and even larger non-government organisations could complement grant or program funding with investment focused on road safety to increase their impact and enable more to be done.

A broader range of investors are likely to be interested if there are commercial grade investment propositions with the added social benefit of improved road safety. However, some investors may be motivated by the social benefit as a core aspect of their decision making and require that dimension to be present. To attract capital from these 'social impact investors', the investment proposition must clearly focus on achieving specified and measurable social outcomes as well as a credible investment proposition.

FIGURE 7: USING THE SAFE SYSTEM FRAMEWORK TO IDENTIFY PROSPECTIVE INVESTORS

	FUNDER / INVESTOR TYPE	SAFE SYSTEM APPROACH				
		ROAD SAFETY MANAGEMENT (E.G. REGULATION)	SAFER ROADS AND ROADSIDES (E.G. INFRASTRUCTURE)	SAFER VEHICLE (E.G. VEHICLE DESIGN AND DEVELOPMENT)	SAFER ROAD USERS (E.G. BEHAVIOUR CHANGE)	IMPROVED CRASH RESPONSE (E.G. EMERGENCY & REHAB)
FUNDERS	Government	✓	✓	-	✓	✓
FUNDERS	Public/Private organisations (e.g. TAC)	✓	✓	-	✓	-
FUNDERS	Private insurers	-	-	-	✓	✓
FUNDERS	Corporate transport network users	-	✓	-	-	✓
FUNDERS	Donor organisations	✓	✓	✓	✓	✓
FUNDERS	Philanthropic trusts and foundations	-	✓	✓	✓	✓
INVESTORS	Commercial banks	-	✓	✓	-	-
INVESTORS	Pension funds and institutional investors	-	✓	✓	-	-
INVESTORS	Corporates (e.g. car manufacturers)	-	✓	✓	✓	-
INVESTORS	Impact investing funds	-	✓	✓	✓	✓
INVESTORS	High net worth individuals	-	✓	✓	✓	✓
INVESTORS	Development banks and DFIs	-	✓	✓	✓	✓
INVESTORS	Philanthropic trusts and foundations	✓	✓	✓	✓	✓

BOX 5:

FUNDING SAFER SYSTEMS: THE TRANSPORT ACCIDENT COMMISSION OF VICTORIA (TAC)

The Transport Accident Commission of Victoria (TAC) was established, and is governed by the *Transport Accident Act 1986*. It administers a comprehensive no-fault compensation scheme for Victorians who are injured or die as a result of a transport accident. It has a broad statutory mandate to improve road safety for the benefit of the Victorian community and has implemented a range of ground breaking initiatives aimed at road user attitudes and behaviour and improved vehicle safety.

In 2013/14 the TAC paid out over$1.1bn for 47,115 claimants. That equates to approximately 0.3% of GSP and amounts to $23.4K per claimant per annum or $188 per head of population in Victoria.

Since the early 1990's the TAC has funded a series of infrastructure projects through VicRoads (the State Roads Authority) targeting high risk blackspots and blackspot areas as part of its strategy to reduce FSIs and manage down insurance costs. Those investments have been supported by evidence-based cost benefit analyses which have primarily relied on data relating to crash histories at a site or along a length of road. TAC historicallyrequired a minimum projected BCR of 3:1 for any single project. The business case and outcomes are based on actual crash data and are evaluated against established criteria by the Monash University Accident Research Centre (MUARC).

A recent example is an AUD$36M investment under the TAC Safer Road Infrastructure Program (SRIP) to deliver a range of road safety improvement projects along the entire length of this section of Princes Highway East (PHE). This includes traditional road safety treatments (e.g. roadside barriers, shoulder sealing and rumble strips) to target the specific crash types.

Preliminary post-completion analysis of the improvements made to two road sections under that investment costing just under AUD$20M indicates the following improvements:

- actual reduction in serious injuries of 44% (with the AusRAP/iRAP model predicting 42%)
- an estimated 56 serious casualties saved per year for each AUD$100m invested
- elimination of all AusRAP/iRAP 1- and 2-star (least safe) sections and a 36% increase in road length at 4-star or better (safest)

BEFORE AND AFTER CRASH DATA ANALYSIS (source: VicRoads)

CRASH TYPES (DCAs)	% CHANGE		SERIOUS CASUALTIES SAVED/YEAR	SERIOUS CASUALTIES SAVED/YEAR PER AUD$100M INVESTED
	CRASHES	PERSONS		
	SERIOUS CASUALTY	SERIOUS CASUALTY		
LANE DEPARTURE	-44%	-49%	6.67	33.88
ALL DCAs	-35%	-44%	11.00	55.89

BEFORE AND AFTER AUSRAP STAR RATINGS (http://www.irap.org/en/about-irap-2/star-ratings)

Source: Cockfield 2011 TAC Annual Report 2013/14 and ABS Cat. No. 5220.0, Australian national Accounts: state Accounts 2013/14 and VicRoads/RACV Analysis 2015.

BOX 6:

INNOVATIVE WORLD BANK ROAD SAFETY INITIATIVES

The GRSF housed in the World Bank is one of the leaders in promoting and encouraging adoption of the safe system, both within the MDB network and with client governments. It works to embed road safety within World Bank lending.

GRSF funding has been channelled to more than 30 countries across all World Bank regions and resulted in over USD$500m in road safety spending since 2006. It has also played an important and necessary role in helping low-middle income countries to review and address capacity gaps. The following example from Argentina demonstrates how this can be used to strengthen program design and strategic delivery capacity.

ADAPTABLE LOAN FOR ARGENTINA'S NATIONAL ROAD SAFETY AGENCY (ANVS)

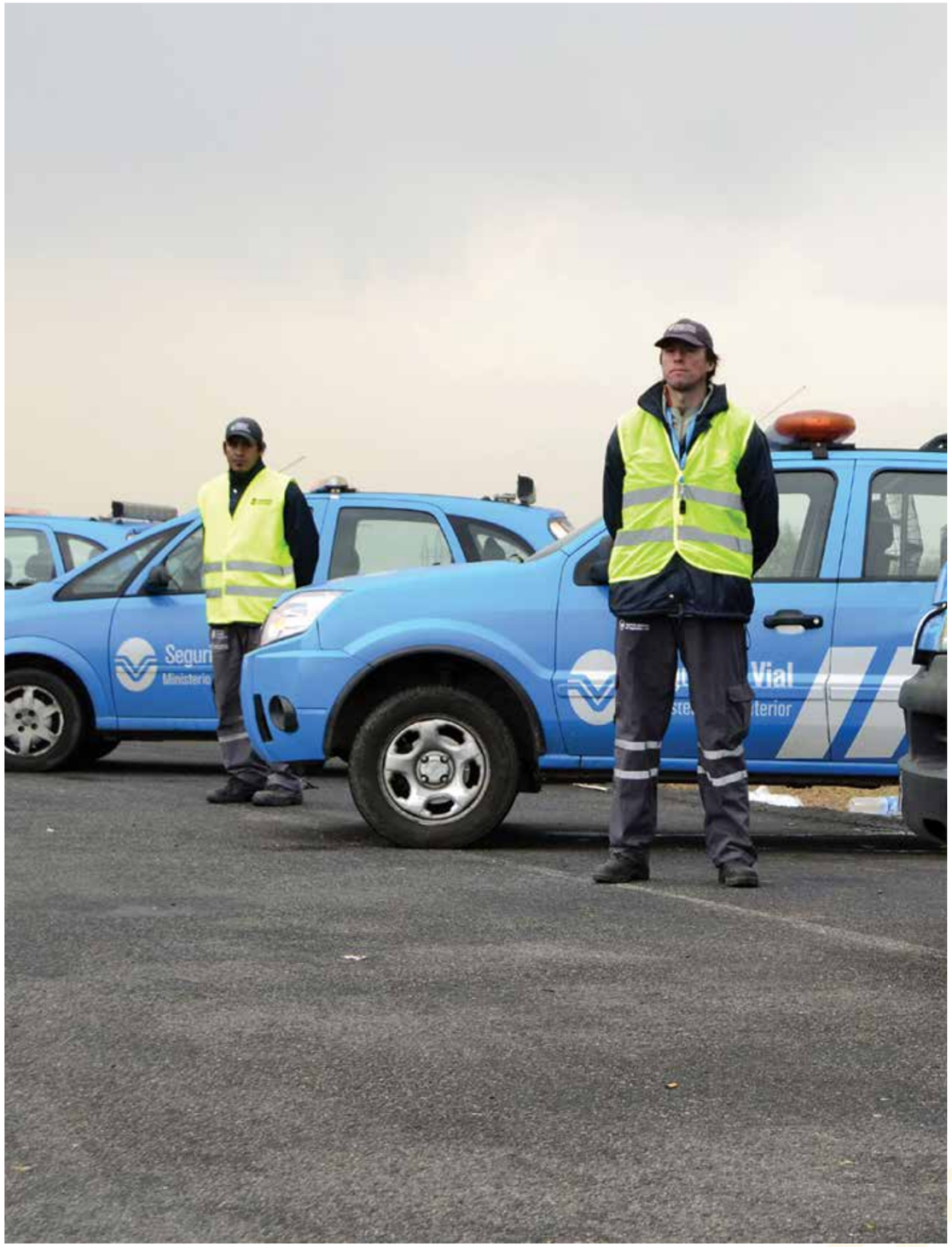
In 2008 an estimated 5,760 people died from road crashes in Argentina, compared with an estimated 3,200 fatalities in 2002. Mounting disquiet over the road toll led to establishment of ANSV in 2008.

The ANSV approached the World Bank for technical assistance and funding for its road safety management plan. The World Bank approved a two-phase loan for a specific road safety project. Phase I (2010-2015) investment totalled USD$38.5m, with a further USD$30m available for Phase II, contingent upon certain pre-defined 'triggers' based on significant improvements to road safety systems in Phase I.

The World Bank loan funds a broad range of interventions from across the safe system approach, including institutional improvements, police training, better data collection, infrastructure safety, road user awareness campaigns and enforcement in pilot 'safety corridors', strengthening of civil society, road safety education in schools, and post-crash interventions, including improved emergency response systems.

Argentina has stopped the rise in road fatalities and begun to reduce the number of deaths, from a high point of 14.5 per 100,000 population in 2008 to 11.6 in 2011. By 2013 the project had achieved the 'trigger points' for approval of stages of the loan drawdown and a second phase to the project was in development.

Source: Bliss T, Raffo V 2013



Police enforcement is one element of the holistic safe system road safety initiative launched in Argentina.

INTRODUCING SOCIAL IMPACT INVESTMENT

The imperative to identify new solutions to complex social problems - in an environment where it is increasingly apparent that finite government resources must be supplemented if problems are to be tackled at scale - is driving new approaches to finance.

Social impact investment (sometimes referred to as impact investment or social finance) presents an opportunity to leverage additional funding, and offers new mechanisms to test and deliver interventions in order to demonstrate their effectiveness and ability to deliver impact.

'(Social) impact investor' and '(social) impact investment' are used to refer to investors and investments that intentionally seek to deliver a positive benefit for society as well as a financial return, and measure the achievement of both. The requirement for a positive benefit to society distinguishes this field from traditional commercial investments; the requirement that there be some measure of financial return distinguishes it from grant funding and philanthropy.[45]

Measurement of impact is an emerging science. It often involves a focus on 'outcomes' rather than 'inputs' or 'outputs'. That is, measuring elements such as improvements in health and prevention, safety, community engagement or understanding rather than numbers of clients, levels of participation or amount of education or other activity. It is not uncommon that data is less available and attribution more difficult for outcomes than activity-based measures.

Some social impact investors seek competitive financial returns in addition to their focus on impact; others are willing to accept below market returns where that is necessary to achieve greater impact from their investment.

Impact investors represent a broad church and include progressive foundations and family offices, companies, banks, DFIs, insurance companies, pension and investment funds, governments and individuals. They have different priorities and varying appetites for risk and return (both social and financial).

FIGURE 8: SPECTRUM OF ALTERNATIVE INVESTMENT APPROACHES [46]

INVESTMENT PROFILE	FINANCIAL-ONLY	RESPONSIBLE	SUSTAINABLE	IMPACT			IMPACT-ONLY
	Delivering competitive financial returns						
		Mitigating Environmental, Social and Governance risks					
			Pursuing Environmental, Social and Governance opportunities				
				Focusing on measurable high-impact solutions			
				Competitive financial returns	Below market financial returns		
	Limited or no regard for environmental, social or governance practices	Mitigate risky environmental, social and governance practices in order to protect value	Adopt progressive environmental, social and governance practices that may enhance value	Address societal challenges that generate competitive financial returns for investors	Address societal challenge(s) which may generate a below market financial return for investors	Address societal challenges that require a below market financial return for investors	Address societal challenge(s) that cannot generate a financial return for investors

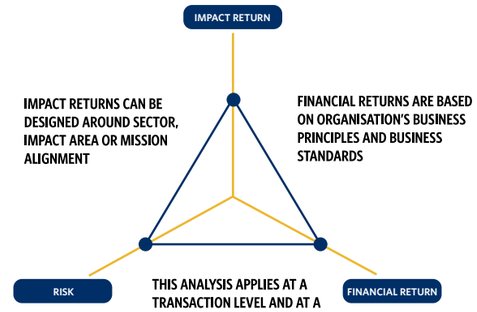
Types of social impact investments

Social impact investments can be found across all financial product types. The difference is that a third dimension - impact - is added to the more conventional dimensions of risk and return employed in investment decision making.

Social impact investment mechanisms likely to have particular relevance for the road safety context include asset backed investment, direct investments and innovations designed on social impact investment principles including impact bonds. As in mainstream capital markets, funds and bond structures can be used to pool capital from a range of investors. This enables a portfolio approach to risk and return and also impact.

Social impact investment also has the potential to provide structures that can bring together parties with different appetites for risk, return and impact. This includes philanthropists, governments and other funders coming together with investors to provide an overall mix of capital that meets their combined priorities and risk appetite. For example, grant funding can provide credit enhancement to de-risk an investment proposition and can fund initiatives that build capacity in enterprises or other bodies to enable investment to be deployed effectively. This can be used to encourage investment into areas or on terms that would not be possible through traditional philanthropy or commercial finance. For example, in project finance where it is common to combine different tranches of capital, the convention is that investors that take greater risk also expect higher financial return. Applying a social impact investment approach, some funders or investors may be prepared to accept greater risk with no or lower financial return to encourage investor participation because their priority is achievement of the social objectives.

FIGURE 9: IMPACT AS THE THIRD DIMENSION OF INVESTMENT [47]



BOX 7:

SOCIAL IMPACT INVESTMENT MECHANISMS

ASSET BACKED	IMPACT BONDS	DIRECT INVESTMENT
Asset-backed social impact investment has strong potential and has been an important form of finance in areas such as affordable or supported housing and renewable energy, including in developing markets. The underlying assets and/or revenue flows generally support and generate a return on the upfront investment. Well-designed, this type of mechanism can also support a cost saving model with savings realised over time.	Social and development impact bonds are a novel form of social impact investments. Despite the name they are often not bonds in the traditional sense. A typical impact bond is a partnership between an outcomes funder (usually government or can be foundation or donor agency), a service provider and investor(s). Investors provide capital up-front to fund a programme or set of interventions and the outcomes funder will repay the investors their capital plus return based on social outcomes on an agreed basis if the targeted outcomes are achieved.	Debt or equity investment into enterprises or organisations that deliver impact. Returns come from the revenue stream or capital growth of the enterprise. This may be supplemented with technical assistance or other support for capacity building.

BOX 8:

EXAMPLES OF SOCIAL IMPACT INVESTMENTS

ASSET-BACKED SOCIAL INVESTMENT CASE STUDY: EMPOWER COMMUNITY MANAGEMENT (ECM)

Gentoo Housing Association (a provider of social housing in the North East of England) wanted to help alleviate the issue of fuel poverty faced by many of its tenants and simultaneously increase the usage of clean energy by the local communities. ECM (a subsidiary of Gentoo) raised £10.1m in investment to acquire 2,300+ solar panels installed on Gentoo's housing stock. These homes benefit from free electricity and also feed energy back into the national grid, the proceeds of which are used to pay back the loan. The investment is structured as an amortising 20 year loan plus margin annually. 2,327 homes will benefit from free electricity alleviating fuel poverty for those most at risk. The establishment of the Empower Community Foundation will deliver a significant proportion of surpluses generated by the portfolio back into the community, and some 3,000 tonnes CO2 will be abated each year.

Source: http://empowercommunity.co.uk/

SOCIAL IMPACT BONDS: PETERBOROUGH (UK), SHORT SENTENCE OFFENDING, THE ONE* SERVICE

The first impact bond was developed in the UK aimed at lowering very high rates of reoffending (over 60%) among short-sentence male offenders (sentences of 12 months or less). This SIB aims to break this cycle by addressing offenders' individualised needs so that they can reintegrate into society. Five social sector service providers work together to provide support to address client needs which if unaddressed contribute to their reoffending behaviour, with the flexibility to engage other support if needed. The programme engages all short-sentence offenders leaving Peterborough prison, working with three cohorts of 1,000 offenders over six years. The success of this SIB is contingent upon reducing the reconviction rate of the target population relative to a comparison group. Investors include local, national and international charitable foundations who provide up-front risk capital to fund the intervention. Investors' entitlement to receive their principal back plus a return is contingent upon achieving the social outcome (that is, reduction in reconviction rate). Investors receive payments if the reconviction rate falls by 7.5% across all of the cohorts.

EVOLUTION OF SIBS

This first SIB brought together five service providers in an adaptive learning environment to pilot a bespoke solution for an underserved population: high-frequency short sentence offenders. SIBs which have been developed since, in the UK and elsewhere, have targeted different social issues and also show an evolution in financial structures reflecting differing issues and measurement environments, investor risk appetite and delivery models.

One of the first SIBs in Australia, focused on children in care and delivered by the Benevolent Society of New South Wales, evolved the model with a two-tier capital structure: a higher risk, higher return instrument as a first loss tier which enabled a less risky, lower return instrument to be invested in by a wider audience.

In the US, the New York State SIB focused on reducing recidivism and achieving employment outcomes for ex-offenders and is delivered by the Center for Employment Opportunities. This SIB evolved the model further, with foundations playing a role and with some investors accessing the investment through Bank of America Merrill Lynch's wealth management platform.

A further evolution has been the adaptation of the impact bond model to the development context, as a Development Impact Bond (DIB). These are already being applied to diverse social issues including education outcomes in India and sleeping sickness in Uganda.

Sources: http://www.socialfinance.org.uk/impact/criminal-justice/; http://www.dpc.nsw.gov.au/programs_and_services/social_impact_investment/social_benefit_bonds; http://www.socialfinanceus.org/what-we-do/select-current-engagements/social-finance-drives-landmark-new-york-state-deal

DEVELOPMENT IMPACT BOND (DIB) CASE STUDY: UGANDA, SLEEPING SICKNESS

Human Sleeping Sickness is a neglected tropical disease transmitted by tsetse flies that is ultimately fatal in the absence of treatment. There are two forms of this disease, Gambian and Rhodesian, and in Uganda there is a danger that the two strains will overlap, with significant treatment and cost implications. This DIB aims to eradicate sleeping sickness from central Uganda, to prevent human deaths and the overlap of the two strains of the disease. The initial phase (Y1-3) of this DIB involves mass treatment of cattle, which are the main carriers of the disease, followed by a second phase of long-term behaviour change to improve the way that rural farmers spray their cattle to prevent tsetse flies from spreading sleeping sickness.

This DIB will undertake continuous data collection, via a purpose-built mobile app, cattle blood sampling to identify locations where sleeping sickness exists, and qualitative and quantitative surveys to ascertain why farmers are currently not spraying their cattle. Analysis of this data, combined with a flexible budget, will enable project management to adapt activities to respond to the individual farmer requirements of particular regions. The paucity of current data in Uganda is typical of many developing countries, therefore the DIB model, which emphasises data collection and learning, can identify what works and ensure that donor funds are allocated efficiently.

Source: Social Finance. Note that the Uganda Sleeping Sickness case study describes a DIB proposal currently in development which may change before finalisation

IMPACT BONDS

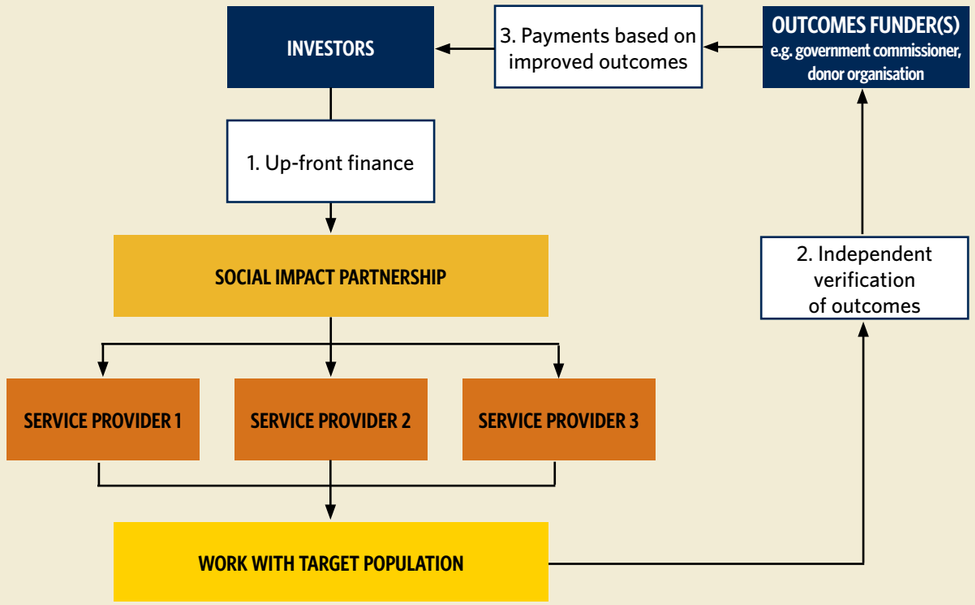
Social and development impact bonds expressly link the social and financial elements of an investment by making financial performance contingent upon achievement of verifiable improvement in the targeted social outcomes. Impact bonds work most effectively when certain key criteria are satisfied, including a willing commissioner, measurable outcomes and robust and verifiable data.

Impact bonds have attracted considerable worldwide interest. This is in part because they offer a model which enables finance to be raised to fund innovative or preventative approaches to social problems, in a way that the investor's return on investment is directly linked to the success (or not) of the intervention.

Since the first SIB was launched in 2010 in the UK, there has been significant attention and development of the approach around the globe. SIBs have been launched in seven further countries. There are now more than 40 SIBs in operation worldwide, and many more in development, targeting a wide range of social problems including recidivism, homelessness, youth unemployment, risk of chronic diseases such as type 2 diabetes, education, early childhood development, and HIV transmission.

FIGURE 10: TYPICAL SOCIAL IMPACT BOND FINANCIAL AND ORGANISATIONAL STRUCTURE

1. Investment is raised on the basis of the contract
2. Rigorous data collection systems are put in place so that social outcomes can be measured over time
3. Investors are repaid only if desired outcomes are achieved



Impact bonds have also gained considerable attention in the international development arena, as an additional instrument which complements existing results-based aid models, such as cash on delivery aid. DIBs offer the possibility of financing for results-based aid, as well as the additional focus on performance which comes from investors' capital being at risk to achievement of outcomes.

Examples of impact bonds in practice and their evolution (Box 8) illustrate the importance of grounding the design in the local context, research and practice on the social issue in frame, and the data and measurement practicalities. Experience also highlights the need to build local partnerships and strong delivery models which take account of these factors and the local conditions in which it will operate, yet remain investable.

As the model has been adapted to different social issues and in different countries, with differing access to investment capital, it has both evolved and shown its versatility. In the road safety context there is an opportunity to draw on the learnings of different impact bond models (examples in Box 8), many of which will be relevant.

Scale of the social impact investment market

Based on 2015 figures, there is over USD$60bn invested in impact investment globally with about half invested in developing markets and half in developed markets.[48] Social impact investment is being explored to support the delivery of social outcomes across a range of issues, including health, housing and employment. The greatest sums are invested in sectors with established revenue streams and/or are asset backed - housing, microfinance and financial services, energy.

Although there has been significant growth in the field, the numbers are clearly small compared to the overall capital markets and the projected investment requirements for road safety, and the most recent global survey indicated that only 1% of assets currently allocated to impact investment is invested in infrastructure.[49] However, developments are occurring rapidly and as links are made across different countries and sectors, the pace and potential to adapt models for different contexts is accelerating.

The import of this goes beyond money. The potential of social impact investment extends to re-imagining public private partnerships beyond economic and financial risks and interests. It combines new and old participants and ideas to achieve different ways of engaging that can deliver outcomes beyond what the traditional approaches or individual parties can deliver alone, and do so for the benefit of society.

Social impact investment is gaining increasing attention from the financial markets

APPLYING SOCIAL IMPACT INVESTMENT TO ROAD SAFETY

There is an opportunity to create financial structures that place social impact alongside more conventional mechanisms for funding and financing road infrastructure, road safety and capacity building interventions. Some recent developments in the road safety arena and in broader fields of development and infrastructure finance could also inform structures. However, there has not yet been a breakthrough to make the step change from current practice to unlocking capital at scale to support the goals of the Decade of Road Safety and for sustainable development.

Could social impact investment provide a key? It brings social outcomes into frame and supports a multi-stakeholder approach to problem-solving. At a minimum this approach could help shed light on pieces missing in the current paradigm and bring social impact more clearly into view. It could provide a framework that engages governments and donor organisations seeking opportunities for more efficient investment of public resources, civil society and non-government organisations that design and implement services and projects, and a range of commercially and financially interested parties, including entrepreneurs to insurers and investors.

Over time, a structured approach to looking beyond the facilities or infrastructure being built to the nature and quality of the impact on the lives of people affected could support design, demonstration and scaling of more options to invest in safe systems.

The impact lens

By definition, social impact investment mechanisms take a more integrated approach to both the social and financial dimensions of issues affecting society. In some cases this highlights an alignment of interests between parties focused on the social and financial dimensions not previously evident. Some social impact investments, particularly impact bonds, make financial outcomes contingent on the achievement of improved social outcomes.

To make a shift to an integrated approach to impact will require development of the evidence base to fill in the missing pieces relating to cost and stakeholder interests. This is needed not only to validate who has a financial or broader stake in achieving better outcomes, but also to inform design of the social impact component of investments and establish a track record for what is an appropriate risk and return relative to particular interventions and their impact. For example, verifiable outcomes data for programs to encourage helmet wearing in countries such as Vietnam or Cambodia and the relationship of behaviour change to incidence of FSI in the target group could inform design of an impact bond to finance greater reach or better targeting of such measures. Data across a range of countries could inform assessments of whether a similar approach could be taken through a pooled finance vehicle to reduce FSIs across multiple markets or target groups.

The social impact investment toolbox

Applying social impact investment to road safety is unlikely to be a one size fits all approach. A range of options can and should be explored with the aim of developing a 'toolbox'. These options could range from asset backed structures, to outcomes based mechanism, or direct investment in key parts of the frameworks for safe systems.

Structures can be designed so that funding and finance are complementary, with different tiers of capital, risk and obligation. For example, targeted government or philanthropic grant capital could encourage private investors to take up road safety investments by reducing the (actual or perceived) risk.[50]

Designing social impact investment mechanisms for the road safety context could include adaptation or additions to project finance structures well known in the infrastructure sector and pooled funding approaches used in the development context. One option is a modular approach that has both a conventional finance component and a social impact investment component appealing to different groups. For example, coupling an impact bond or payment for success model with a project finance or public private partnership arrangement.

Different mechanisms will be more or less suited to different parts of the safe system framework and to different markets. It will be necessary to test and assess which funding or financing instruments are appropriate to the particular circumstances. This could be done within a structured framework (Figure 11) that identifies the type of approaches most likely to be fit for purpose.

FIGURE 11: FRAMEWORK FOR CONSIDERING SOCIAL IMPACT INVESTMENT MECHANISMS BASED ON MARKET AND INTERVENTION

	DEVELOPED COUNTRIES	DEVELOPING COUNTRIES
INFRASTRUCTURE	**Potential:** • Good potential alongside traditional asset backed models • Potential for outcomes contingent component (i.e. SIBs) where there is value to focus on outcomes **Pre-conditions:** • Longitudinal data - support predictive modelling	**Potential:** • Good potential alongside traditional asset backed models • Country implementation risk and data weakness will need to be overcome for outcomes contingent models **Pre-conditions:** • Data • Mitigation of implementation risk
NON-INFRASTRUCTURE	**Potential:** • Some potential for outcomes contingent models for behavioural interventions or where an adaptive learning model is appropriate **Pre-conditions:** • Data • Robust intervention model with evidence of effectiveness among the target population	**Potential:** • High potential of outcomes contingent behavioural intervention to demonstrate 'what works' **Pre-conditions:** • Clearly defined intervention group • Well designed intervention model baseline data measurement and performance management systems • Risk mitigation and/or risk accepting investors

In addition to reframing investment in road infrastructure and behavioural interventions, social impact investment approaches could be developed to build other aspects of the safety 'eco-system' and capacity to implement safe systems. This could include direct investment in services providers and other organisations supporting the system, for example through manufacture of quality helmets or safety barriers or other roadside interventions.

As a general rule, for social impact investment in road safety as for investment in any sector, cash flows and risk will dictate the investment model. Investor appetite for risk and pricing of a fair risk adjusted return for any of the mechanisms will require robust data to underpin it. Over time, track record of performance can also provide a way for capturing and organising relevant data.

BOX 9:

SOCIAL IMPACT INVESTMENT MECHANISMS

FINANCE MECHANISM	ASSET BACKED	IMPACT BONDS	DIRECT INVESTMENT
CHARACTERISTICS	Asset-backed social investment for road safety would focus on improving the physical infrastructure of a road or road network. Asset-backed investments will likely fall into two categories, a revenue-supported model and a cost-saving model. Could be revenue supported directly from road users or through a 'shadow toll' system, fines, levies or a combination. A cost-saving model could be developed where there is a financial interest in reducing the number and severity of injuries over a road or road network over a period of time. Unlike traditional asset-backed lending, road safety infrastructure is unlikely to have significant inherent value and linking repayment to cashflows that are expected to result from a cost-reduction to the borrower may prove too uncertain to attract commercial investors. While such considerations may be a barrier to commercial investment, or result in a much higher cost of capital, there may be a willingness from social impact investors to accept non-conventional options if there is a sufficiently robust impact case.	The impact bond model is most suited to situations where there is an element of implementation risk, therefore uncertainty about impact being achieved. Impact bonds can involve a number of delivery organisations, and are highly dependent on context. Impact bonds allow funders to share the risk of a programme's effectiveness to deliver outcomes with investors. As such, it may have particular application in developing countries, where country governments do not have the resources or capacity to invest in road safety. It could allow international donors, foundation and other funders to allocate their resources efficiently to projects that achieve results, as well as build up an evidence base.	Direct Investment to support and promote road safety through e.g. debt or equity investment in social enterprises, NGOs or 'profit with purpose' companies that are working to improve road safety. Examples could include start up capital to a helmet manufacturing facility where there is a lack of local suppliers; or providing working capital to a construction company which has a contract to maintain roads in a remote area of a developing country, yet unable to source bank finance through other channels because of the risks of the environment in which they operate. Social investment may have a role to act as first movers or invest in particularly fragile states. Over time, as road safety continues to climb the international agenda mainstream investors such as car manufacturers could become involved, or venture capital and/or institutional investors.
SAFER ROADS AND ROAD SIDES	Safer roads and road sides	Safer road users, post crash response, road safety management	Safer vehicles, safer road users, safer road management

BOX 10:

WORKED EXAMPLES OF POSSIBLE SOCIAL IMPACT INVESTMENTS

DIRECT INVESTMENT: CAMBODIA MOTORCYCLE HELMET MANUFACTURERS

Motorcycle helmet use is much lower in Cambodia than in neighbouring countries like Vietnam. A number of factors contribute to this, but a principal barrier has been identified as the lack of helmet manufacturers in the country, meaning that helmets are too expensive for many motorcycle users:despite 98% public approval of a passenger helmet law, actual helmet use is very low. Investment in increasing the availability of affordable, quality helmets in countries like Cambodia could significantly improve the rate of helmet use and significantly reduce the adverse economic and social impact of RTIs.

PAYMENT-BY-RESULTS FOR ROAD MAINTENANCE

Chad has begun to contract out road maintenance contracts to private organisations on output-based contracts, rewarding year-round continued safety and accessibility of major roads. There is also the potential for investment to build the capacity of NGOs to take on more road safety responsibilities in fragile states (contracted by donors), such as monitoring the safety of a road network, or even accident emergency response providers.

Sources: Bachani AM et al. Helmet use among motorcyclists in Cambodia: a survey of use, knowledge, attitudes, and practices, Traffic Inj Prec 2012; Ha Trong Nguyem et al. Measuring compliance with Viet Nam's mandatory motorcycle helmet legislation; Colin Delmore, AIP Foundation Development Director; Peltzer and Pengpid (2014) ibid.; https://www.gpoba.org/sites/gpoba/files/ChadRoadsOBApproaches_2.pdf

DEVELOPMENT IMPACT BOND FOR INCREASED HELMET USE AMONGST YOUNG PEOPLE IN VIETNAM

Helmet use among adult motorcyclists in Vietnam increased dramatically in response to legislation in 2007, however, use among passengers aged 14 and under remained low. A DIB could be explored to finance a district/city-wide school-based intervention for children. This could be delivered by an NGO working in partnership with the traffic police, the education department and other key stakeholders and might include a number of components e.g.: free or subsidised motorcycle helmets; road safety training and education; community awareness raising and enforcement (including soft enforcement) by police.

A key consideration for a DIB proposal of this kind is setting appropriate outcomes and metrics. A transparent and easily verifiable outcome would be the reduction in number and severity of RTIs among the target cohort compared to a baseline or comparison group. However, as there is unlikely to be sufficient data to establish a robust baseline to form the basis of returns to investors, initial performance metrics based on outputs, such as the number of children engaged in the programme or helmets distributed, would need to be investigated. The programme could collect data on the rate and cost of RTIs and alongside delivering the intervention, such that investors and outcomes payers can negotiate acceptable outcomes target and payments for future years of the programme. The intervention group would need to be of sufficient size to prevent against sample bias, and also relies either on good availability of data for setting a baseline.

Impact bonds and road safety

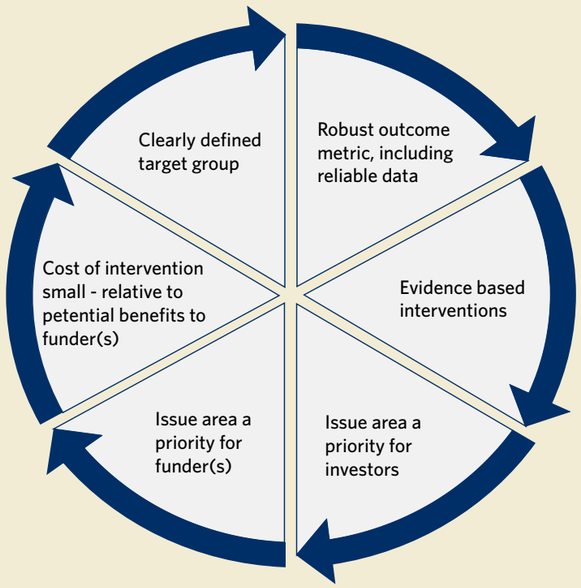
Impact bonds could form part of the road safety investment toolbox provided they are designed fit for purpose and areunderpinned by robust data, intervention models and measurement frameworks. However they are not a silver bullet. The scale of investment alone required to be reoriented or added to current investment to achieve road safety goals relative to the largest impact bond to date (USD$25m of investment capital) makes that clear. However, they are a powerful instrument of change which should be considered.

The early stages of developing social impact investment approaches to road safety may suggest starting with specific non-infrastructure interventions. For example, behavioural interventions such as encouraging helmet use or reducing behaviours that lead to speed and unsafe driving are potential areas in which the model could be explored provided the pre-conditions for success (Figure 12) are in place.

Those pre-conditions include funders who will pay for outcomes. Ultimately, there must be a party prepared to repay investors their capital and agreed returns if the agreed outcomes are met. While this may be based on savings that accrue to that commissioning party given it has a direct financial interest in the outcome, as the purchaser of the outcomes it will not otherwise be repaid its investment.

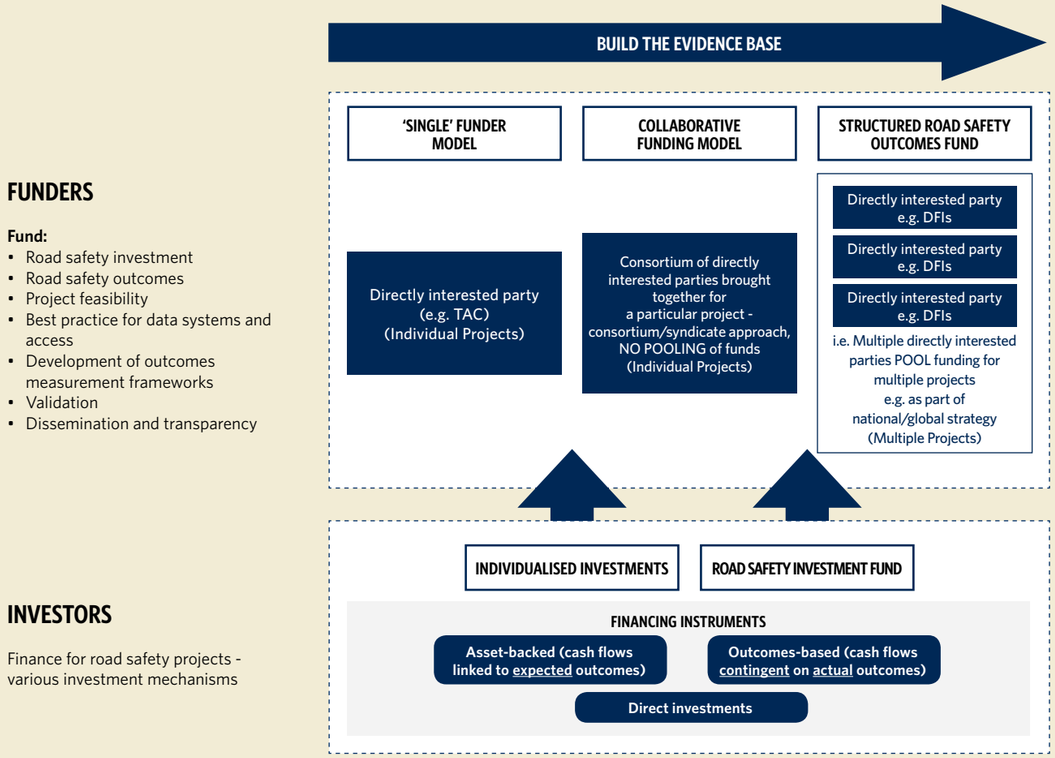
Equally, an impact bond requires reliable, quality data and data sources which are relevant to the intervention and the target group, the ability to measure (and something against which the effectiveness of the intervention can be measured, such as a reliable baseline or, in some cases a comparison or control group), as well as interventions which can deliver, within a reasonable time frame, outcomes that the funder is willing to pay for and which investors are willing to finance on a risk basis.

FIGURE 12: PRE-CONDITIONS FOR SUCCESSFUL IMPACT BONDS [51]



Where these conditions are not present, one option that could be explored is a demonstration model, for example to build up better baseline data or to test the effectiveness of alternative interventions, with either grant funders or investors seeking high impact and willing to take high risk taking the role of investor.

FIGURE 13: EVOLUTION OF A SOCIAL IMPACT INVESTMENT MODEL FOR ROAD SAFETY



Toward financial innovation and aggregation for scale

The aspiration for social impact investment is that where 'right size' demonstrations can establish proof of concept, build capacity and systems, that will provide a foundation for bolder leads to translate the learning to investment at much larger scale.

The work starts where the data and evidence exists; first with single funder models, then moving toward more collaborative structures (Figure 13).

The data and evidence can be developed over time to build up the case to move towards the ultimate goal of building outcomes funds at scale. Such a fund would bring together funders who wish to incest in outcomes and would pool funds that could be used to invest in projects and develop expertise in design, execution and management of social impact investment in road safety.

The 'key' to success in attracting investment

In order to design, test and implement to new investment options a disciplined design approach will be required. At the most general level, that will involve (Figure 14) engagement of interested parties and relevant experts in a structured process of:

- thorough analysis of the underlying problem, in this context based on aspects of the safe system that are lacking and particular areas of sensitivity for safety;
- assessment of whether it fits the dimensions of social impact investment, including what impact there is which can be measured and whether that would motivate a social impact investor, and if so, on what terms; and
- working through the most suitable form of impact investment instrument for the particular circumstance.

Where that can be done across a range of potential road safety interventions and market contexts, the learning from the process itself will inform future action.

FIGURE 14: KEY PROCESS QUESTIONS FOR SOCIAL IMPACT INVESTMENT [52]

1. PROBLEM DEFINITION

OBJECTIVE

- Identify the information/drivers required to build a more effective solution to the problem
- Being able to clearly describe how other actors are affected/interested/could be involved

↓

2. IMPACT INVESTING FEASIBILITY

OBJECTIVE

- Can funding be used differently to attract other sources of investment?
- Is there a baseline and measurable outcomes that can be evaluated?
- Better understand different investors' requirements and risk levels
- What data, capacity or modelling gaps need to be addressed?

↓

3. INVESTMENT MODEL

OBJECTIVE

- Due diligence on operating and financial model
- What components does the social impact investment solution require? (For example, is there a service delivery component, infrastructure component, etc.)
- Design and structuring to attract funding and investment
- Which parties will be responsible for what, who will be paid to do what, how you will structure these payments, etc.
- Implementation & identify suitable to access market

USAID is supporting this motorcycle helmet initiative in Cambodia on the basis of clear metrics for reducing both injuries and health costs

TRANSLATING THE POTENTIAL INTO PRACTICE

Developing the frameworks, data and investment modelling to support different approaches will be a key part of the next stage of work. The opportunities and structures will need to evolve as different and more reliable data is collected. Early experience and case studies can inform principles and data collection to be applied more broadly.

Safe systems for road safety and the social impact investment market are both breakthrough approaches showing great promise. Neither is fully mature in its development or implementation. It will take time and resources to test and scale new approaches including impact bonds and work toward more ambitious steps like a global outcomes fund.

However, this need not be an entirely incremental approach. Some clear and concrete actions can start now to start unlocking opportunities. Chief among these will be developing the data that can provide a concerted focus on filling in the missing pieces, identifying interested parties and developing the case for investment. Action taken now will help build the foundations for more aspirational leaps toward scale over time.

A genuine commitment from key leaders to exploring an impact driven approach could have an important signalling effect and generate momentum. This could enable early demonstration projects to be developed relatively quickly.

Combining the relevant skills and stakeholders with concrete initiatives to test an impact approach could inform a social impact investment methodology for road safety that translates ideas from this paper into practical tools for the field.

5 steps for action

1. Develop targeted case studies to better understand what existing data can tell us. This could include case studies of leading examples from around the globe including the TAC, the World Bank and leading studies of behavioral interventions for safe system elements such as helmet and seatbelt wearing.

2. Identify projects currently in development to serve as a demonstration of how a social impact investment approach could be applied in the road safety context. It would be instructive to select an infrastructure approach and a behavioural intervention and target at least one instance of developed and developing economies.

3. Design a methodology and toolkit for collection of data. This should have the following twin priorities:

    - Filling out the 'missing piece' to demonstrate who bears which costs.[53] This could include developing a simple calculator to 'size' the potential benefit to particular stakeholders of a particular intervention in a given setting.

    - Building foundations for an evidence base relating to particular interventions and outcomes achieved.

4. Use the imperative of the Decade of Action and focus on road safety in the SDGs to gain multi-stakeholder commitment and resources to develop the evidence base.

5. Develop a roadmap to progress from concrete illustrations of the complex ideas involved in investing in safe systems to advocate for and develop options that will deliver change at scale.

The imperative for improving road safety is clear. Momentum for social impact investment is growing. The time for leadership and action is now.

ENDNOTES

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[15] http://www.irap.org/en/about-irap-2/a-business-case-for-safer-roads. Data for some countries is not available. This explains why the total number of deaths is less than the WHO's 2013 worldwide estimate. The International Road Assessment Programme (iRAP) assesses roads all over the world and aims to significantly reduce road casualties by improving the safety of road infrastructure. iRAP was formed in 2006 as an umbrella organisation for EuroRAP, usRAP and AusRAP and also to facilitate work in middle and low income countries
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[23] Harvard 2011, p.5
[24] http://www.irap.org/en/about-irap-3/research-and-technical-papers?download=267:irap-star-rating-policy-targets-fact-sheet; http://www.irap.org/en/about-irap-3/research-and-technical-papers
[25] http://www.irap.net/en/about-irap-2/star-ratings; Star ratings are one of four global protocols developed by iRAP in collaboration with leading road safety research organisations to assess and improve the safety of roads. Other protocols are risk maps based on detailed crash data, safer roads investment plans and performance tracking tools. http://www.irap.net/en/about-irap-3/methodology.
[26] For example in New Zealand modified concessions have been implemented where the concessionaire pays a penalty for each fatality and serious injury crash.
[27] See *Differentiating Funders and Investors* for a detailed case study
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[49] Saltuk et al 2015, pp.5-6ff
[50] UK Cabinet Office 2013, GIIN 2013
[51] Source: Social Finance UK
[52] Adapted from Australian Department of Employment Education & Workplace Relations 2013, unpublished
[53] This will need to identify and differentiate cost categories (such as property, emergency services, medical including hospital bed day, income loss, dependency, welfare, funeral and related costs and administration and legal expenses) and whether costs are publically or privately incurred, insured or uninsured costs.

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ABOUT THE FIA FOUNDATION

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The FIA Foundation's mission is to support 'an international programme of activities promoting road safety, the environment and sustainable mobility, as well as funding motor sport safety research'. The Foundation works with a range of international partners including the World Bank, AIP Foundation, iRAP, Global NCAP and Partnership for clean fuels and vehicles. It is a contributor to major global action campaigns including the Decade of Action for Road Safety 2011-2020.

FIA Foundation commissioned this work to take a different lens on opportunities to unlock capital to achieve a global breakthrough on road safety and reduce the costs of road trauma. FIA Foundation works with a range of international partners including the World Bank and other Development Finance Institutions, AIP Foundation, iRAP, Global NCAP and is a leading contributor to major global campaigns for road safety including contributing to the Sustainable Development Goals and invites collaboration to translate the ideas in this paper to action.

ABOUT THE AUTHORS

Impact Strategist

Impact Strategist designs breakthrough social innovation and impact investment strategies to tackle complex social problems and create new social and economic value. Impact Strategist is led by Executive Director, Rosemary Addis, a recognised thought leader and trusted adviser to senior leaders cross sectors globally.

Rosemary Addis led the team for this initiative which included Social Finance UK, and Regina Hill, Effective Consulting Pty Ltd. Rosemary is a member of the Social Impact Investment Taskforce, established and chairs Impact Investing Australia and the Australian Advisory Board on Impact Investing and is a member of the NSW Government Social Investment Expert Advisory Group. She is widely published on social innovation and investment including: Inviting Investment in Social Enterprise (2007), Conversations about Possibility: Themes & Reflections from the International Philanthropy Collaboration (2008); IMPACT-Australia: investment for social and economic benefit (2013), Delivering on Impact (2014); Catalyzing Impact Investment (in IIPC Benchmark Report, 2014) and The role of government and policy in social finance (Nicholls et al (eds) publication pending). Her work also led to publication of Place Based Impact Investment in Australia (2012) and Networked Incubation in Government: a case study of the incubation of Children's Ground (2013).

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Social Finance is a not for profit organisation working in partnership with government, the social sector and the financial community to enable sustainable social impact at scale. Since formation in 2007, Social Finance has mobilised over £62 million of social investment and designed a series of programmes to tackle social challenges.

Social Finance developed the social impact bond (SIB) model and launched the world's first SIB in 2010, targeted at reducing reoffending rates for those leaving prison. Since then, Social Finance has led the development and launched a number of other SIBs across a range of social issues, with the object of tackling entrenches problems to focus funding for social programmes at prevention and to implement accountable structures for delivery of programmes. It is the global leader in developing, launching and managing the ongoing performance of SIBs and supports the model's development worldwide.

The Social Finance team for this initiative is led by Jane Newman, International Director, and Tom Davies.

Social Finance published works and technical guides include: Technical Guide: Building a Case for Prevention (March 2014); A Technical Guide to Developing Social Impact Bonds (January 2013); Investing in Social Outcomes: Development Impact Bonds (October 2013).

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