



Building a flexible, reliable and sustainable transport system played a large part in the success of the 2010 FIFA World Cup™. Arguably the most challenging of all tasks, it was the area in which significant infrastructural improvements will be felt by South Africans of this generation and those to come.

sustainable transport





A brightly painted bus shelter as part of the 'Soccer and Environment Campaign' serves as a visual reminder of the environmental legacy of the 2010 World Cup in Cape Town.

5.1 Introduction

A NUMBER OF INESCAPABLE REALITIES specific to South Africa meant that the predicted carbon emissions of the 2010 FIFA World Cup™ would be higher than any other major sporting event before it. In the feasibility report for a carbon neutral world cup transport accounted for 86.4% of the total predicted footprint of 2.75 million tonnes of carbon dioxide for the event (DEA, 2009a). Whilst international air travel was the main contributor to this footprint, inter- and intra-city travel would also make a substantial impact compared to similar large scale events overseas. This also reflects a South African legacy of inadequate spatial planning and historic under-investment in the public transport systems which have led to a dependency on private vehicle use. This, in turn, has led to severe road congestion in urban centres, declining levels of air quality and deteriorating road surface conditions as well as higher carbon emissions.

Transport was consequently recognised as one of the major considerations for planning prior the World Cup. It was recognised that the sheer volume of spectators entering South Africa, and the mass transit of fans to and from match events, would require careful planning and preparation, and was therefore considered to be one of the chief hurdles to running a successful event. In a survey carried out by the South African Social Attitudes Survey (SASAS) on the "Attitudes to Transport and 2010 World Cup in South Africa" (HSRC, 2009), an overwhelming majority (80%) of South Africans surveyed agreed that road congestion would present the main disadvantage to hosting the World Cup. The results of the survey provided a number of other useful and positive insights into public perception, with a general agreement that, as a result of the World Cup:

- Infrastructure would improve
- Public transport improvements would benefit the poor
- There would be better policing and security of transport facilities
- Train coaches should be refurbished or upgraded
- Mini-bus taxis should be regulated
- At least 60% of the respondents wanted public transport improvements to be lasting or sustainable.

Although the focus of World Cup related transport initiatives was to move spectators and tourists in a logistically sensible and safe manner, the long term sustainability



of transport options were taken into consideration at all stages of planning, design and implementation. In particular, the development of public transport systems and promotion of non-motorised transport were prioritised.

5.2 Actions taken

5.2.1 National Government Support

The South African Government acknowledged that upgrading public transport infrastructure was an essential component to the smooth running of the event, and the South African Department of Transport (DoT) duly made substantial funding available to municipalities to assist with transport infrastructure projects. Further funding was put forward by the National Treasury as well as from the Public Transport Infrastructure and System (PTIS) grant. The programme to upgrade transport systems, included:

- Construction and upgrades of public and rail transport and road infrastructure
- Bus rapid Transit (BRT) systems
- Inner-city mobility systems
- Intelligent transport systems and call centre systems
- Airport-city links
- Passenger safety.

(SA Online, 2010)

5.2.2 Moving the Masses

All transport planning activities focused, wherever possible, on the avoidance of unnecessary travel, as well as the provision of safe public or non-motorised transport options. Each Host City produced operational plans that included strategies to minimise travel needs related to the event. The primary objectives were to ease existing problems of traffic congestion and insufficient parking amenities. Successfully establishing a varied and integrated transport offering, including bus shuttle services, “park and ride” and “park and walk” facilities, was one of the key initiatives. While these concepts are well established elsewhere globally, this was the first time they had been implemented at a significant scale in South Africa.

The “park and ride” facilities were supported by match-day shuttle services between the stadiums, main transport hubs and other strategic locations. Distances for both “park and ride” and “park and walk” facilities needed to be kept within international standards (i.e. a maximum of two kilometre walking distance and at least a five kilometre radius where other modes of transport were provided to complete the trip and ensure popular use).

THE RECAP PROJECT

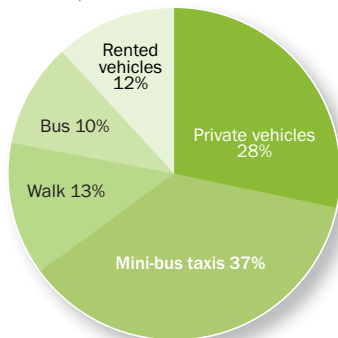
One of the most widely publicised – and certainly the most ambitious – government interventions that took place in the lead-up to the 2010 World Cup was the Taxi Recapitalisation Programme. Minibus taxis are the most popular form of transport in urban South Africa and the industry employs around 200,000 people with an annual turnover of R16.5 billion (Arrive Alive, 2010). The taxi industry plays an important role in South Africa by providing cheap, accessible transport to a large proportion of the population. Historically, the industry has had a reputation for being unsafe and unreliable.

The Recapitalisation Programme (also known as “Recap Project”) sought to proactively address the problem of an ageing and unregulated minibus taxi fleet. The project represented a comprehensive re-engineering of the taxi industry which aimed to incentivise the replacement of ageing taxis with new high-spec models by means of a ‘scrappage’ allowance. The project is on-going and has achieved considerable success in terms of improving regulation of the taxi industry, by ensuring compliance with legitimate documentation and safety specifications. In 2009, more than 27,800 old taxis had been scrapped with more than R1.4bn paid out to operators. A total of R7.7bn has been allocated to the Taxi Recapitalisation Programme.

During the lead-up to the World Cup, the minibus scheme became a visible indication of the government’s commitment to cater for the transport needs of the World Cup and dedication to the ongoing safety of both the local and international commuters.



FIGURE 4. PUBLIC TRANSPORT USED DURING MATCH DAYS IN RUSTENBURG (DEA, 2010A)



INTEGRATED PLANNING AND OPERATIONS

With the numerous different transport facilities, it was essential that Host Cities undertook a system of integrated planning. Durban incorporated a ‘hub-and-spoke’ concept: from the City’s central shuttle drop off node, fans were able to walk to the Moses Mabhida Stadium or to beachfront fan fests along pre-designated fan routes. This system was further supported by rail routes, “park and walk” systems, “park and ride” routes, metred taxi areas, hotel shuttles and the ‘People Mover Project’. A range of on-street and dedicated “park and walk” facilities were available within a 3 kilometre radius of the stadium.

The transport system implemented in the Host City of Mbombela was comprised of a public transport hub, six “park and ride” points and one “park and walk” venue with shuttle services linking the Mbombela Stadium, fan fest and airport. A number of primary and alternative routes were developed to ensure that the system ran efficiently and congestion was kept to a minimum. This was further bolstered through infrastructural upgrades, such as the new Northern Ring Road which provided an alternative route to the main highway through Mbombela, and an alternative route to the stadium.

Infrastructural upgrades in the Host City of Cape Town included the construction of integrated rapid transport stations at Cape Town International Airport, Cape Town Stadium and the city centre. Fifteen ‘railway style’ bus stations along the transport route were developed and were used for the World Cup “park-and-ride” facility.

FOOT-POWER

“Park and walk” facilities were designed in such a way as to link up with fan parks, feeding people along Fan Walks to the stadiums. Host City Rustenburg established a two kilometre route along which environmental volunteers were dispersed to educate people about the Green Goal campaign and National Greening Programme. Host City Polokwane established a Fan Mile (3.4 km) to the stadium on which all forms of motorised transportation were prohibited. Surveys conducted on the modes of transport used during games held in Rustenburg, show that a majority (37%) of spectators arrived at the stadium and various “park and walk” facilities by mini-bus taxis (DEA, 2010a).



MyCiti Busses were introduced into Cape Town’s Transport system as part of the integrated transport plan.

SHUTTLE BUSES

Nelson Mandela Bay was among the many Host Cities to initiate a “park and ride” and a “park and walk” system. A 2010 branded and accredited shuttle service was used to collect and transport fans to the stadium from the parking areas every five minutes. Similarly, six hundred specially branded buses and mini-bus taxis provided the shuttle services in Mbombela. Polokwane also invested in 100 new shuttle buses for the 2010 event, and public mini-bus taxis were branded with environmental awareness mes-





sages. These were utilised to transport visitors into Polokwane from outlying areas. The initiative was considered to be a success as most fans made use of public transport, leaving their vehicles at home.

Although a number of dedicated shuttle services will not continue operating regularly into the future, the demonstration by government and the wider transport sector on delivering safe and convenient public transport has set a precedent towards which future transport initiatives can strive.

5.2.3 Non-motorised transport

The greening objective to reduce carbon emissions was met through the promotion of two key non-motorised networks: pedestrianised routes and cycling lanes. A secondary spin off was the creation of festive 'fan walks', a model that provided a platform for both spectators and non-spectators to experience 'World Cup fever' and enjoy the melting pot of cultures that SA and its visitors had to offer.

THE MOSES MABHIDA STADIUM ... IS NOW CONNECTED TO THE BROADER KINGS PARK SPORTS PRECINCT THROUGH THE CREATION OF NEW PUBLIC URBAN SPACES



PEDESTRIAN AND CYCLING NETWORKS

On a larger scale, the Greening Durban 2010 programme lobbied the transport sector about the development of an improved pedestrian and cycling network within the city. The initiative provided support to the already planned upgrade of Durban's beachfront promenade by establishing a major pedestrian and cycling link between the beachfront hotel belt and the Moses Mabhida Stadium.

Thanks to the planning and vision behind the design of the Moses Mabhida Stadium, it is now connected to the broader Kings Park Sports Precinct through the creation of new public urban spaces. Many locals have deemed this a great success. The space has continued to flourish post-World Cup and today one can see families, sports enthusiasts – and those looking simply to socialise – gathered for a range of activities. With its large, unrestricted dimensions the area serves as a popular meeting place and venue for shopping, eating out and sporting events. An example of this is the Engen Dynamic Cycle Challenge which took place in August 2010 and put the new pedestrian and cycling routes to use. The significant investment in the City's infrastructure is another indication of its commitment to creating a sustainable urban environment for the people of Durban.

Cape Town focused on creating new pedestrian and bicycle lanes: A cycle route linked the central business district (CBD) and the stadium, and a bicycle rental service was set up during the event. A sidewalk upgrade project was undertaken along Main Road leading to the stadium from the city centre, to accommodate a bicycle lane and an additional footway, with two pedestrian bridges to provide a safe environment for pedestrians linking the CBD with both the stadium precinct as well as with the V&A Waterfront, South Africa's most visited tourist destination (City of Cape Town, 2010).

Pedestrianisation of Isiaah Ntshangase Road, Durban





Environmental volunteer on a Pedi-bike as a form of non-motorised transport in Rustenburg and Cape Town during the World Cup

The **SHOVA KALULA BICYCLE PROJECT** (meaning 'pedal-easy') is a national government initiative aimed at addressing transport challenges in under-served communities. Channelled through the Department of Transport (DoT), the project provides lower-cost bicycles to those with generally poor access to transport, such as students, rural women and farm workers. The pilot project was initiated in 2001 but was further promoted in Tshwane during the World Cup to facilitate accessibility from peri-urban areas. The programme has in turn promoted the establishment of micro businesses concerned with bicycle maintenance and repair. Aside from the obvious advantages of helping to empower vulnerable people, the efforts have the additional benefit of promoting non-motorised transport and enhanced rural accessibility. As part of the programme, the City of Tshwane built 3 kilometres of cycle paths and walkways and 16 pedestrian ramps (DoT, 2007).

Polokwane was another Host City that effectively created safe pedestrian networks linking the stadium precinct, Fan Park, football training venues and public transport nodes/stops. In Bloemfontein, Mangaung Municipality's key transport initiatives comprised the pedestrianisation of two major roads in the immediate proximity of the stadium precinct, and the construction of a pedestrian bridge for the event.

A number of cities embraced pedal-power for the World Cup. Pedi-bikes were introduced from the "park and walk" facility in Rustenburg. Locals and tourists could either walk or hop on to a pedi-bike to get to the fan park and Royal Bafokeng Stadium.

5.2.4 Gearing up for the future: Public Transport Beyond 2010

According to the National Household Travel Survey (NDT, 2005), only 26% of households in South Africa have access to motor vehicles (108 cars per 1000 people). A large portion of the population therefore relies on public transport to meet their needs. Minibus taxis are responsible for 65% of the 2.5 billion annual passenger trips in rural, urban and inter-city transport, with buses and trains comprising 21% and 14% respectively. Looking at these statistics it is understandable why South Africa invested considerably in the improvement of public transport through the upgrading of the existing system, and construction of new facilities and services. The World Cup called for the identification of budgets for new construction projects and facilitated the significant acceleration of projects already in progress (i.e. these projects were brought forward).

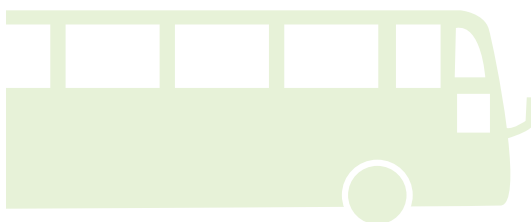
Strategies to improve public transport were introduced in all Host Cities and in some instances included the establishment of integrated rapid public transport networks. These networks comprise an integrated route of rapid rail, established transport corridors, BRT systems, taxi and metered taxi priority networks. Full special needs and wheelchair access formed a key aspect of these strategies. The establishment of the networks in the Host Cities has minimised carbon-intensive transport by providing the commuter with an alternative to private vehicle travel. Many of the cities offered additional services to cope with match day events, for example, the City of Tshwane, where Metrorail provided additional trains and serviced Loftus Stadium directly, an action that was significant in clearing the stadium surrounds of crowds after each match.

eTHEKWINI'S PEOPLE MOVER

eThekweni's transport plan aimed to achieve an improved system and quality of public transport during the World Cup and beyond. The "People Mover" project incorporated 13 buses capable of transporting 33 passengers each along two routes: the North-South beachfront route and an East-West route that connects with other transport route systems within the inner city and at Warwick Junction (the city's primary transport node).

BRT SYSTEMS IN JOHANNESBURG

The City of Johannesburg developed the Rea Vaya (meaning "We are going" in Portu-





guese) Bus Rapid Transit (BRT) system with an objective to reduce traffic congestion and to promote the use and reliability of public transport by 25%.

The Rea Vaya bus service was developed as a safe and reliable public bus rapid transport system that transported fans along specific routes to and from the stadiums. The system was one of the many transport and infrastructure projects significantly accelerated as a result of the World Cup to ensure transport needs were met. During the event it was one of the largest carriers of fans to and from matches in Johannesburg. The system, based on the Brazilian Curitiba model, utilises:

- Specialised vehicles
- Dedicated bus lanes
- Easy-access stations
- Reliable scheduling.

The ongoing benefits of the system are numerous, not least of which being lower carbon emissions due to fewer cars on the road. The Rea Vaya system consists of three specific types of buses and bus routes. Largest are the Trunk buses, with a capacity of up to 112 passengers, and the smallest are Feeder buses, linking outlying areas.

THE GAUTRAIN: BRINGING THE HIGH SPEED RAIL REVOLUTION TO AFRICA

In development for many years, but given impetus by the world cup, Joburg's Gautrain has revolutionised travel for commuters in the area. Although only one section of the line has been completed, between the OR Tambo International Airport and the Sandton business district, it is a route that was notorious for its gruelling congestion. It has reduced travel time between Joburg and the airport from approximately one to two hours (depending on traffic) to 15 to 20 minutes, creating relief for commuters.

The train reaches speeds of 160 km/h (100 mph): though a far cry from the world's fastest train it is far superior to the locomotives typical of the rest of the continent's tracks, which date by-and-large from the colonial era. With a hefty price tag of R24 billion, the hope is that this rapid transit system will bring reliability and efficiency to the regional Gauteng transport system. A link between Joburg and Tshwane is projected to be completed by mid-2011.

SUSTAINABLE TRANSPORT TAKING THE HIGH ROAD

The high-occupancy-vehicle (HOV) project within Mbombela entailed the construction of dedicated lanes along the major entry route into Nelspruit and the widening of five bridge structures along this section of the road (between the Nelspruit City Centre and the Kruger Mpumalanga International Airport). The HOV lane is limited to vehicles with two or more passengers. The private transport model in South Africa comprises largely of single occupancy car use, thus the HOV lane provides a good incentive to lift-share, particularly during peak traffic hours.

The eThekweni Municipality secured a budget of R145 million for a major upgrade of the Western Freeway – one of South Africa's busiest roads – which was built in the 1970s and had outlived its service life. Urgent rehabilitation was required to prevent a rapid deterioration of the road. Widened from three lanes to four, this will continue to serve the city in the improvement of traffic flow, especially during peak periods. The provision of a dedicated public transport lane in both directions has been incorporated in its upgrade, and the fast lane in both directions between Jan Smuts Highway and Botanic Gardens Road has been reserved for the exclusive use of public transport.

The Western Freeway public transport lane is the first of its kind in Durban and will be monitored for improvement opportunities. It serves as the gateway to the City for all traffic entering from the two major highways and was a vital route during the 2010 World Cup (Engineering News, 2008).

SUSTAINABLE RAZL INFRASTRUCTURE

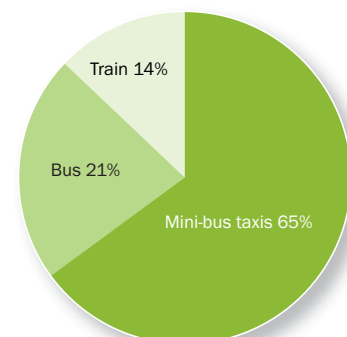
The Passenger Rail Association of South Africa (PRASA) developed a railway station specifically to serve the Moses Mabhida Stadium in Durban. The facility was developed to serve as support infrastructure to the broader sports precinct and the 2010 events as well as for long term use, and to service a fairly large number of potential commuters that do not currently have access to rail services in the Umgeni Road Corridor. In addition to this, the station was designed to include sustainability con-

THE WORLD CUP CALLED FOR THE IDENTIFICATION OF BUDGETS FOR NEW CONSTRUCTION PROJECTS AND FACILITATED THE SIGNIFICANT ACCELERATION OF PROJECTS ALREADY IN PROGRESS



The Gautrain, a project accelerated by the World Cup, has revolutionised travel in South Africa.

FIGURE 5. PUBLIC TRANSPORT IN SOUTH AFRICA (NDT, 2005)



... siderations such as energy efficient lighting, heating, ventilation and water services.
 ... Ultimately, the desire was for the station building to provide a positive contribution to
 ... the socio-economic development and to act as a catalyst for a sustained urban regen-
 ... eration of the area.

TABLE 12. SUMMARY OF 2010 FIFA WORLD CUP™ TRANSPORT INITIATIVES

TRANSPORT INITIATIVE	HOST CITIES
Shuttle services	<ul style="list-style-type: none"> • Cape Town – Shuttle between stadium and main transport hub on match days, two pick up services on the peninsula route and airport shuttle service. • eThekwini – “Hub and spoke” system shuttle for match days. • Mbombela – Shuttle with branded buses and minibus taxis. • Mangaung – Inner-city shuttle service including a route with 16 stops and specific transport nodes. • Port Elizabeth – Shuttle with branded accredited buses. • Polokwane – Branded public taxis carried spectators from outlying areas.
Bicycle facilities and cycle network	<ul style="list-style-type: none"> • Cape Town – New bicycle lane along Fan Walk, upgrades to cycle routes in stadium surrounds and bike hire service. • eThekwini – Upgrades to cycling link to beachfront. • Tshwane – Installation of three kilometres of cycle paths and walkways, and engagement in the Shova Kulula Bicycle Project. • Polokwane – Designated cycle networks. • Rustenburg – Non-motorised ‘pedi-bikes’.
Pedestrianisation	<ul style="list-style-type: none"> • Cape Town – Fan Walk and pedestrianisation of Somerset Road (main road to stadium). Construction of two pedestrian bridges. • eThekwini – Pedestrianisation of Isaiah Ntshangase Road. Linkages to beachfront including pedestrian bridge over. • Mangaung – Pedestrianisation of the stadium precinct and construction of pedestrian bridge. • Polokwane – Designated pedestrian network extended beyond stadium surrounds.
“Park and Ride” & “Park and Walk”	<ul style="list-style-type: none"> • Cape Town – Ten rail stations offering park and ride facilities and two bus park and ride stations set-up. • eThekwini – “Hub and Spoke System” within three kilometre radius of stadium. • Johannesburg – “Park and ride” and “park and walk” facilities in place. Complemented by the ‘Rea Vaya’ BRT System. • Tshwane – “Park and ride” and “park and walk” facilities available. • Mbombela – Six “park and ride” points and one “park and walk” venue. • Mangaung – “Park and ride” and “park and walk” facilities available. • Port Elizabeth – Shuttle service every five minutes on match days. • Rustenburg – Two kilometre Fan Walk.
Eco-driving	<ul style="list-style-type: none"> • Cape Town – Eco-taxi project. • Johannesburg – Eco-driving training.
Improved transport routing and system	<ul style="list-style-type: none"> • eThekwini – People Mover Buses and public transport information system (touch screens). • Johannesburg – Rea Vaya, BRT network. • Tshwane – BRT System.
New infrastructure	<ul style="list-style-type: none"> • Cape Town – Three Integrated Rapid Bus Transport systems and numerous railway-style bus stations. • eThekwini – Moses Mabhida Railway Station; Warwick Junction Modal Interchange; King Shaka International Airport. • Mbombela – Northern Ring Road bypass constructed as alternative route. Dedicated HOV lane along the R40. • Mangaung – Upgrade of three main inner city roads and major train station feeding stadium.
Upgraded infrastructure	<ul style="list-style-type: none"> • eThekwini – Upgrades to the beachfront promenade and Western freeway (public transport lane). • Polokwane – Upgrades to existing rail system and Polokwane airport.



CARBON REDUCTION INITIATIVES

Did you know that planning your route more efficiently and avoiding excessive braking and acceleration are simple ways of reducing your carbon footprint? These pointers, among others, were part of the re-training received by a number of Cape Town taxi drivers as part of the City's Eco-Taxi project. The City of Cape Town introduced the project, which promoted driving in an "eco-friendly" manner, in collaboration with local private enterprises and associations such as the South African Petroleum Industry Association. Private initiatives included modifying fleets of taxis to run on liquefied petroleum gas. The combustion of the gas emits roughly 10% less carbon dioxide than normal petroleum vehicles, and costs the same to run as unmodified vehicles. This gave residents and travellers the opportunity to reduce their carbon footprint while travelling in Cape Town (CNN, 2010).

Johannesburg drivers were also trained in fuel-efficient, "eco-driving" as part of the City's Greening initiatives. The initiatives included objectives to reduce carbon emissions for all FIFA vehicles and public transport vehicles to meet Euro II standards for fuel efficiency and emissions; and to encourage spectators to use public transport.

5.3 Outcomes

BUILDING A FLEXIBLE, RELIABLE AND SUSTAINABLE transport system played a large part in the success of the 2010 FIFA World Cup™ event. Arguably the most challenging of all tasks, it was also the area in which significant infrastructural improvements will be felt by South Africans of this generation and those to come. All nine Host Cities implemented transportation plans, supported by shuttle, "park and ride" and "park and walk" facilities. Plans for integrated rapid public transport networks, such as Johannesburg's Rea Vaya BRT were brought forward and have proved to be a popular public transport option in the post event period. Perhaps most importantly, the upgrades have created innovative ways of encouraging people to use public transport in a country in which private vehicle use is the default option for those who own vehicles. Infrastructural upgrades of major transport routes and the installation of dedicated public transport and high occupancy lanes were changes much needed in a country whose transport sector has historically been afforded inadequate support and investment. Table 12 presents a summary of 2010 FIFA World Cup™ Transport initiatives, however the major legacy benefits provided by the World Cup can be summarised as follows:

- Substantial new investment in public transport systems, where the majority of the population do not own a motor vehicle
- Significant acceleration of already planned public transport projects
- Expansion and promotion of non-motorised transport infrastructure, and
- Promoting the adoption of public, private shared occupancy and non-motorised transport modes to a large percentage of South Africa's population accustomed to a culture of single-occupancy car use.

The advances listed above will be crucial to South Africa's reducing its carbon emissions in the future. Initiatives introduced during the World Cup itself, including vehicle restrictions in stadium surrounds and urban centres, meant that fans were obliged to utilise public transport and non-motorised transport options, thus creating a shift in traditional behaviour. In Joburg, "park and ride" systems ferried 25% of fans travelling to the stadium. An estimated 14% of commuters utilised the "park and walk" facilities, and an estimated 10% of fans opted for rail transport systems on match days, and another 10% made use of the Rea Vaya system.

The 2010 FIFA World Cup™ allowed South Africa to show its potential in providing safe public transport in line with international best practice. The challenge will be to continue this drive for improvement in public transport as well as to instil a behavioural change within commuters to move away from singular private vehicular use to the use of these new public transport networks and facilities in future.



Preparations and planning – and lots of signage – were crucial in order to move the fans around effectively.

