



# FTurban ingenuity

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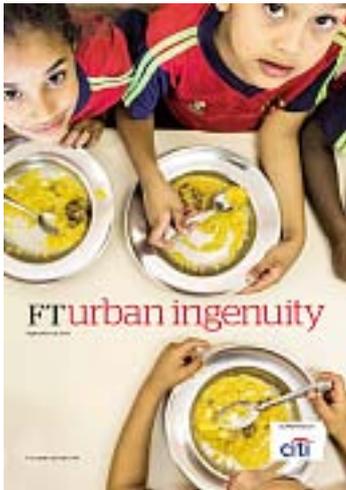
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# BANKING IS A DULL WORD FOR BELIEVING IN PEOPLE

*There are epic challenges facing the world today. The environment, health care, education, to name a few. Who will lead? It is, as the pages of this magazine show, those who see possibility everywhere. Who think beyond traditional boundaries. Who believe that, with enough imagination, we can build a better world.*

*For over 200 years, Citi's job has been to believe in people and to help make their ideas a reality.*





**ON THE COVER**  
A school-building programme in Belo Horizonte, Brazil, brings together a richer social mix of children

## Signs of hope

**Y**ou only have to look at the fate of Detroit – which recently filed for bankruptcy protection after years of decline and inner-city decay – to appreciate how important innovative thinking about urban problems is for the Americas.

This magazine is dedicated to new ideas about improving the environment of American cities – be they bombed-out post-industrial areas of the US or sprawling Latin American centres ringed by slums, groaning under the pressure of migration from rural areas.

This magazine is also a vehicle to highlight the FT/Citi Ingenuity Awards: Urban Ideas in Action, which focus on fresh thinking and action in addressing the explosive growth of cities around the world.

This is the second year of the awards, which last year produced entries from across the globe in four categories – energy, health, infrastructure and education. This year we have changed to a geographical split, and are highlighting some of the strongest contenders in three magazines, of which this is the second.

The first magazine focused on Africa and the Middle East, Asia and Europe. This one concentrates on the Americas. Videos examining urbanisation in the Americas are published on FT.com to accompany this magazine – please go to [www.ft.com/ingenuity](http://www.ft.com/ingenuity).

The final magazine will be published to accompany the presentation of the awards, which will take place in December.

The US, for all its wealth and global power, has some remarkably entrenched problems of urban decay. But it also has powerful minds addressing the issues. At a time when federal politics in Washington remains gridlocked, at the metropolitan level Democrats and Republicans are working much more harmoniously to make their cities better places to live, with stronger infrastructure and safer streets.

The contenders for the awards highlight some of these solutions. For example, Vacants to Value addresses urban blight in the city of Baltimore, where an exodus of employers and population over the past 60 years has left 16,000 vacant homes, fostering criminal activity and lowering the value of surrounding property. Vacants to Value aims to eliminate vacant properties in the city fast and efficiently.

In Latin America, problems range from the poverty of the environment in urban slums to the poverty of the individuals trying to make a living in them. This magazine highlights some innovative approaches that are helping women gain new work skills in countries as diverse as Peru and Panama.

We hope you enjoy these and our other case studies. They show the extent of the challenges. But they also highlight reasons for hope about the future of cities.

**Martin Dickson**

*US managing editor, Financial Times*

# URBAN INGENUITY

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# Fighting back

The bigger cities grow, the harder they fall when industries decline. But crises can also foster ingenious solutions, says **Edwin Heathcote**

PHOTO: GETTY



**Burning issues:** riots in Rio de Janeiro this June in protest at rising public transport costs and spending on sports events

## INTRODUCTION

**W**hen the big US motor manufacturers looked in danger of going under near the start of the last decade's financial crisis, the Federal government stepped in and \$60bn was somehow found to keep them going.

But when Detroit, the manufacturers' one-time heartland and fourth-largest city of the US, found itself going the same way, no help was forthcoming. Cities, despite being the motors of the economy, are still, even in the wealthiest nation in the world, left to crumble.

In that other great powerhouse of the Americas, Brazil, the authorities recently found their cities on fire as protestors rioted over increased bus fares. How was it, they asked, that billions could be found to build the stadia and infrastructure for the upcoming World Cup and Olympics, yet the buses on which the workers rely were getting worse and more expensive?

Cities can be volatile – they depend on some kind of balance, on at least the optimism that things are getting better and citizens have the opportunity to get wealthier. Yet growth brings its own problems: the increase in those expectations, an unwillingness to be trodden on and abused and an increasingly vocal awareness of fairness.

Perhaps it is precisely in these kinds of crises that urban ►



ingenuity has the opportunity to emerge and have a real effect. Detroit had become such a basket case, its real estate so degraded and cheap, that it was arguably beginning to turn a corner. Technology companies and industry had been sniffing around, alongside architects and assorted fringe outfits, from urban farmers to organic furniture manufacturers.

New York's near-bankruptcy in the wake of the 1970s oil crisis was a turning point, a moment

in which the decline in liveability was noticed and the city began to improve its crumbling infrastructure and public space. But it also sparked an extraordinary artistic explosion, which in turn led to the revitalisation of the city's sleaziest quarters.

Punk and new wave emerged alongside folk chic, and artists found new ways to use the city's architecture and industrial infrastructure – Gordon Matta-Clark tearing gashes into old buildings and illustrating the delicacy and

beauty of construction – while Donald Judd and others reinvented SoHo as an artistic hub.

It is interesting to see the Smithsonian's National Portrait Gallery in Washington on the list of contenders for this year's Urban Ingenuity awards with an attempt to use the gallery as a focus to re-engage often alienated urban teens with their city. Other institutions, notably the New Museum in New York's Bowery, have proved hugely influential in the

# INTRODUCTION



**Innovation in action, clockwise from top left: New York's High Line, urban decay in Detroit, the Santo Domingo library in Medellín and the Metrocable in Caracas**



re-establishment of neglected urban quarters.

Meanwhile, the extraordinary success of New York's High Line – an urban park on a disused elevated freight railway – is the latest in a line of developments that reflects this fascination with the legacy of industry, as did the transformation of the same city's Chelsea area into an art district.

Detroit is not New York, but industrial dereliction is something it has in spades. Its time will come.

Other big industrial cities across the US are facing similar problems and any one of the innovative, often surprising initiatives may hold clues to ways of change. Detroit has struggled with shrinkage, with 70,000 derelict properties blighting its centre. One solution has been to demolish, but this has left streets with big, unsettling gaps.

Baltimore, its own vacant properties so unforgettably portrayed in the epic TV series *The Wire*, is trying an alternative with the Vacants to Value programme. This is an attempt to stimulate the reoccupation of the city's empty housing by means of small incentives – although demolition is still questionably on the agenda.

Over in New Haven – once famed for its arms manufacturing

and, of course, Yale University – SeeClickFix presents another urban action scheme, in this case to report and repair minor urban irritations, such as potholes and broken street lamps. This is very much in the model of New York's broken window experiment (fixing vandalised infrastructure to deter further criminal damage). A neglected-looking city attracts crime and decay faster than one that appears pristine.

At the other end of the scale, in Brazil, is Rio de Janeiro's astonishing programme with IBM, the technology company, to establish its "intelligent operations centre". This is an all-seeing eye that combines elements adapted from other cities into a holistic, real-time picture of this most complex and chaotic of cities. The centre covers everything from traffic and crime to weather and environmental conditions.

Arguably some of the most interesting urban innovations over the past few years have emerged from Central and South America. Media in the developed world, often clouded by superficial judgments of leftist governments, have been slow to credit the extraordinary progress made to reduce inequality and improve education.

The brilliant and genuinely life-changing transport innovations in the Venezuelan capital Caracas (the Metrocable cable car system serving the hillside favelas) and the now-famed bus system in Curitiba in Brazil have

made huge differences – that North America would do well to study.

When the people of Medellín in Colombia were asked what they wanted for their city, they voted for libraries. The result was

the Library Parks, a mix of accessible community public space and learning centre that has transformed education and public amenity in the shanty towns and brought new opportunities to the children of the poorest families.

The big cities of the Americas often face surprisingly similar problems: the emptying-out of city centres as residents who can afford to depart emigrate to the suburbs; the results of the drugs problem, felt as keenly in downtown São Paulo as in downtown Baltimore; and the problems of inequality as the gap grows between rich and poor, not just in wealth but also in education, opportunity and quality of life.

Almost any of these ingenious urban ideas that begin to make a difference can be scaled and translated to contexts that are not always as radically different as they might first appear. ■

A neglected-looking city attracts crime and decay faster than one that appears pristine



# Planning for people

The truly smart cities of tomorrow will be those that put the needs and demands of their citizens first



adapt to the demands of a growing population.

Meanwhile, once-great Detroit in the US has just filed for bankruptcy, its boarded-up houses a new icon of urban decay and shelter for abandoned dogs.

Hope is now pinned on our ability to create “smart cities”, where sensors are ubiquitous and the data collected from them are keenly managed to optimise all the city’s resources, from water and power to people and traffic. Technology companies such as Cisco, IBM and Intel are leading the global charge with an obvious vested interest in the hardware and data infrastructure.

Rio now runs a Nasa-style city operations control room, expanding from its initial emergency-response remit to monitor citizens and provide data to them on their mobile phones.

We need to be cautious about this new optimism, however, and wise to the dangers and limits of city planning. Detroit did not just fall victim to a declining motor industry. It was one of many US cities that suffered zealous urban renewal programmes in the 1950s, born out of misguided attempts at social engineering, razing the homes of the poor, exacerbating racial tensions and taking the heart out of the city in such a way as to make current regeneration nigh on impossible.

Urban planning should have a long-term focus, based on a shared view of what and who the city is for and where it is going. But elected city mayors are forced into short-term goals;

they need proof of improvement within their time in office. To thrive beyond their term, their visions and investments need the input and the stewardship of all the city stakeholders.

The US city of Portland, Oregon – frequently ranked as one of the best places to live in the world – is a poster-child for collaborative urban planning. Boston and Philadelphia have recently adopted “New Urban Mechanics” – collaborative civic innovation efforts for citizen engagement. The website Dontflush.me in New York is enabling citizens to synchronise and manage a significant sewage problem. Miami, by contrast, may soon be swept away if its inhabitants are unwilling to invest in ways that might protect it from climate change.

So people and connections need to be at the centre of future cities, and that is as true for smart cities as any other kind, or they will not function properly. Truly smart traffic management, for example, can only come when not just public transportation and speed cameras are connected, but also all cars, regardless of make, petrol stations, toll gates and, most importantly, people and their travel needs and intentions. At a recent IBM Smart Cities event, one of its own engineers commented that the company “tends to look at the pipes and then people come along and destroy all our nice optimised systems”.

For successful future cities, urban ingenuity needs to include finding ways in which people and planners can connect and collaborate. Vibrancy, that elusive but essential element of a great city, cannot be bought in. ■ *Tamar Kasriel is the founder of the consultancy Futureal and author of *Futurescaping: Using Business Insight to Plan Your Life**

**T**he future of our cities is not predetermined. Across the Americas we can see hints and templates of what is to come, from positive models of sustainability, community and revival, to heaving cities with archaic infrastructure, to emptying dust bowls where the municipality cannot afford to keep the lights on. The Americas are full of utopian efforts – the dreams and the building do not stop.

Curitiba in Brazil is widely praised as one of the greenest cities on the planet, with an enviable quality of life. It is a citizen-centred model where a complex infrastructure is able to

**Collaborative urban planning at its peak: Portland, Oregon**



## WHY A BANK SHOULD CARE ABOUT A RIDE TO WORK

Panama's per capita GDP has more than doubled over the past decade, with most of this growth concentrated in Panama City. The downside, however, to every vibrant economy is tremendous urban congestion. To solve this problem, Panama's government made building a mass transit system a priority.

With a long-standing presence in the country, dating back to the funding of the Panama Canal, Citi worked with government leaders on a financing solution for the Panama Metro project. The result will reduce travel time, vehicle operating costs, greenhouse gas emissions and help people get better access to jobs and health care services in the city.

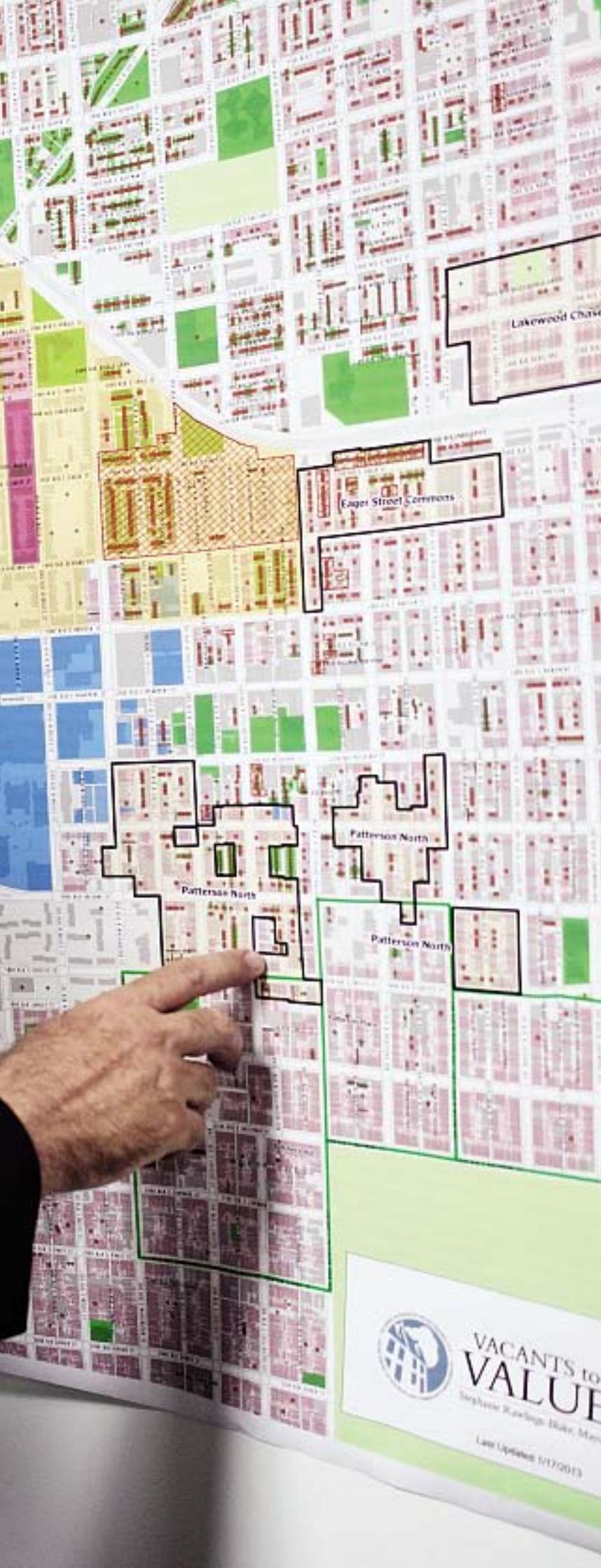
For over 200 years, Citi's job has been to believe in people and to help make their ideas a reality.





# Turning the corner

Baltimore is tackling its urban blight, made infamous by TV series “The Wire”, with a targeted housing renovation strategy, reports **Anna Fifield**  
Photographs by **Jonathan Hanson**



## NORTH AMERICA VACANTS TO VALUE

**L**innell Woods had a case of property envy. She was at the Cherry Hill housing development in Baltimore with a friend who was buying a home.

"I was holding my head down, saying to myself, 'I wish I could do this one day,'" says the 42-year-old, who works in a company mail room and is the mother of two grown sons.

"I thought I was talking to myself, but Lisa heard me and said, 'Why not?'" she recalls, referring to Lisa Hawkes, a real estate agent who works with a non-profit investor helping people like Woods own their homes.

With Hawkes' help, and after six years spent cleaning up her own credit history and saving the \$1,000 down-payment, Woods and her husband, a maintenance mechanic, bought a renovated row (terraced) house in an area of east Baltimore that politely could be called "transitional".

The coastal Maryland city, which has been struck by the kind of urban decay that has blighted other once-great US cities such as Detroit and Cleveland, has launched an ambitious project aimed at rehabilitating neighbourhoods with the potential to be desirable again.

Baltimore has lost more than a third of its population since 1950 as traditional employers such as shipyards and steel mills have moved out, taking much of the city's working population with them. That has left about 16,000 vacant and uninhabitable properties in the city, the grittier side of which was shown in the television drama series *The Wire*.

"Over the past 15 or 20 years, people have been trying to figure out ways to deal with this intractable problem," says Paul Graziano, Baltimore's housing commissioner. "There

**Plotting growth: Paul Graziano, left, wants to build a market that attracts private investors and becomes self-sustaining**



were a few failed attempts over time, like spending city money acquiring properties.”

Baltimore has, with little success, tried the strategies used by cities such as Gary, Indiana, that have sold abandoned houses for \$1 to people who will fix them up and live in them.

As Graziano says: “We don’t want someone to rehab a house on a block of 29 vacants unless there is a plan for those 29.”

So Baltimore is trying a more targeted strategy, one that has gathered steam since Stephanie Rawlings-Blake was elected mayor in 2010. She ordered a stepped-up approach to the city’s housing problem, one that did not require huge amounts of public money, as Baltimore basically had none and federal funds have been cut back.

Instead of trying to fix the buildings itself, the city has implemented its Vacants to Value strategy, which involves getting rid of uninhabitable houses, facilitating private investment, offering incentives to home-buyers and demolishing buildings in severely distressed areas.

“We don’t want one rehab on a block of 29 vacants unless there is a plan for those 29”

The city has teamed up with investors such as Philadelphia-based TRF Development Partners, which describes itself as a non-profit housing affiliate “making real estate investments

that reinforce community assets, revitalise downward markets and create suitable environments for market growth”.

The programme conducted



“cluster analysis” to come up with blocks in distressed areas that it could clear and redevelop.

It has honed in on “areas of strength” in “middle-market neighbourhoods” around Penn Station, which links Baltimore to New York and Washington DC, and Johns Hopkins Hospital, one of the country’s premier medical institutions.

There, the housing authority is focusing on rehabilitating 5,000 houses, rather than all 16,000. It uses its eminent domain (compulsory purchase) powers to take over buildings that are not fixed. The houses are then sold at bargain-basement rates at public auction – sometimes going for \$500 or

PHOTO: AP

# NORTH AMERICA VACANTS TO VALUE

\$1,000 – to investors such as TRF, which fix them up and sell them on.

The idea is to start the ball rolling, so that the area comes to be viewed as attractive. “The goal is to build a market so that private investors can come in and it becomes self-sustaining,” Graziano says.

The remaining 10,000-plus houses in places where there is no market demand will be razed – the city has allocated \$150m for demolition over the next 10 years – to make way for urban gardens. More than 800 patches of greenery are being cared for by the community under the city-administered Adopt-A-Lot scheme.

Vacants to Value started off with about \$26m in funding from the city, state and religious groups, which it hopes to leverage into \$125m worth of investment. It has already attracted \$72.3m of private funding.

Aside from the demolition costs, the city is spending next to nothing on the programme. It is putting about \$1m this year into \$10,000 grants for people who buy homes in the area. (People who work at places such as Johns Hopkins can also apply for a \$17,000 “live near your work” subsidy from their employer.)

Staunching Baltimore’s bleeding is a long, slow process, but the improvements are tangible. Since Vacants to Value started three years ago, 1,302 vacant houses have been rehabilitated and 660 more have been demolished. The city plans to tear down 1,500 more vacant properties and renovate another 1,500 by 2016.

Photos taken before the project began show rows of graffiti-covered houses with boarded-up – or bare – windows, the pavements an obstacle course of rubble and weeds.

The area was a haven for drug



**Personal stake: the scheme has turned renters such as Linnell Woods, opposite bottom, into home owners**

dealers, and undesirable characters loitered on the streets, especially outside Cookies Liquors, a ramshackle shop that used to be on the corner of Bond and Preston Streets.

One of the first things TRF did when it moved in – it has an office, complete with exposed brick walls and stained glass windows, in a house across the road – was to buy the shop and its liquor licence. The licence alone could have fetched about \$75,000.

Then, with local church leaders, it held a ceremony outside the shop and burned the licence – a sign of its intent to clean up the area.

“From the ashes will rise new homes, and from the homes will rise new families,” says Calvin Keene, pastor of Memorial Baptist Church, according to local reports at the time.

Some blocks that have been rehabilitated might still have a couple of derelict houses, but many have been gutted and renovated into modern living spaces with gleaming hardwood floors. The streets are lined with sap-

lings, while houses that have been given a new lease of life by TRF are easily identifiable by their colourful doors.

“We thought, let’s build the best quality houses we can and extend the demand curve,”

says Sean Closkey, president of TRF, which sells the houses at steep discounts – \$40,000 off a market value of \$170,000, for example. “We don’t want to sell seven houses – we want to sell 70,” he says.

The numbers tell of the improvement. The areas targeted for rehabilitation had a vacancy rate of 49 per cent in

2008 and a median household income of \$24,405; today, those figures are 32 per cent and \$40,950 respectively. The developers hope to have reduced the proportion of empty houses to 8 per cent by 2016.

TRF aims to get out of the Baltimore market by 2018, hoping it will be fully functioning and will no longer need its help.

Certainly, the Woods are now set. Their house is worth \$180,000 but, thanks to the subsidies they were eligible for, their mortgage is for only \$114,000.

They are also spending less on housing than they were as renters: \$784 a month, compared with \$921 for their apartment in a public housing complex.

“It feels wonderful,” Woods says of owning her own house, although she does still express some scepticism about the brightness of the yellow paint in her front room. She also feels more invested in the community. “I own my own home, I work, I pay taxes,” she says.

There is still a lot of work to be done, but residents say the area is changing quickly. For

“From the ashes will rise new homes, and from the homes will rise new families”

people like Hawkes, the key will be ensuring the houses remain within financial reach as the market recovers.

“We have to make sure we don’t put people in places they can’t afford,” says Hawkes, who

is in the unusual position for a real estate agent of trying to keep prices down. “Otherwise we will get into a situation like we were in before,” she says, referring to the foreclosure crisis that sparked the 2008 recession.

But for now, she can hardly believe her eyes: “I’m a very optimistic person, but even I can’t believe how it’s turning out.” ■



## Jobs done

A website and app that lets citizens report broken urban infrastructure has spurred cities into prompt action.

By **Shannon Bond**

**O**n a Wednesday in August, Gary Christenson, mayor of Malden, Massachusetts, spotted graffiti in several spots around town, noticed a broken tree limb hanging dangerously over a pavement and bumped over two potholes. He reported the problems and they were promptly fixed by the public works department.

But Christenson isn't the only resident of the small city north of Boston who has a direct line to officials and the ability to provoke an immediate response. Other citizens who have noticed missed rubbish collections and broken streetlights have been quickly alerted that the issues have been corrected. They didn't have the power of the mayor's office, but they used the same tool as him – SeeClickFix, a website and mobile app that allows anyone to flag a problem in their city on a map.

On SeeClickFix, people – neighbours, local media and elected officials – can comment on the issues and follow “watch areas” of particular interest. In many cases, the reports go directly to local government officials, who acknowledge the problems, deploy fixes and inform residents of their progress.

The company, founded in 2008, has contracts with 160 cities to provide reporting tools and management software to city managers, public works and parks departments and other agencies. It is not yet profitable but expects to book \$1.2m in annual recurring revenues this year, mainly from government contracts.

From its home city of New Haven, Connecticut, SeeClick-

Fix has expanded its services as far afield as Chicago, Houston and Toronto. In June, the state of Massachusetts announced a mobile app, based on SeeClickFix technology, covering 54 cities and towns, including Malden and Boston. In August, the company launched a service for Botucatu, Brazil.

Although reports are now made in multiple languages across several continents, the problems they flag up are universal: litter, potholes, backed-up drains, broken streetlights and so on. “Generally we see the same stuff: there are bottles everywhere, there's garbage everywhere,” says Ben Berkowitz, SeeClickFix founder.

In the wake of the financial crisis, which has left many US cities and states with enormous budget shortfalls, Berkowitz says his company offers a way for citizens to receive better services without putting additional pressure on the public purse.

“Any city that is below half a million [in population] is going to have serious financial hardship,” Berkowitz says. He says the tax base is not big enough to cope with the infrastructure and the problems that have been handed down. “It's not possible.”

New Haven, a city of 130,000, is home to Yale University but has suffered decades of post-industrial decline, suburban flight and rising crime, which Berkowitz saw at first hand half a decade ago.

“For me, it started with a piece of graffiti,” he says. The graffiti was on a neighbour's building but in his back yard. “My dog would bark at it every day.”

He started calling government offices, but his messages ➤

“For me, it started with a piece of graffiti. My dog would bark at it every day”

**Sore sights: the problems SeeClickFix users flag up, such as graffiti, tend to be the same whatever the city**

# NORTH AMERICA

## SEECCLICKFIX

went unanswered. “I wasn’t sure who was responsible or what the rules were.”

That was his “light-bulb” moment, he says. He figured his neighbours were probably also reporting problems, and running into the same barriers. So, he thought, why not create a map to track the trouble spots and direct the city to where things needed to be fixed?

Berkowitz, who has a background in graphic design and was running an internet company at the time, was familiar with Google Maps software, and, with a team of collaborators, he soon built

a simple prototype. “You could click on a map and say ‘pothole here’ and that was it.”

Next came the tool that allowed governments to receive alerts based on geography and keywords, such as graffiti, potholes and rubbish.

The first evidence that the prototype was working – that someone was listening – came soon after launch.

One morning someone tagged 18 buildings on State Street with graffiti. Berkowitz fired up the website and posted 18 separate reports.

“Four hours later, some of the graffiti had already been removed,” he recalls. “I was totally confused as to what had happened. I ran into these guys who were removing graffiti from the gas station, and I asked them what was going on. They

said their boss had received this email from this website.”

New Haven signed on as SeeClickFix’s first client. Rob Smuts, the city’s chief administrative officer, says: “A lot of people started using it to report issues, so we had to respond. SeeClickFix wasn’t creating the pothole, but it was making it very easy for people to tell us about it.”

A custom-built dashboard helps New Haven track reports so work gets done. Other work order systems provide a similar service, but officials in cities using SeeClickFix say Berkowitz’s product is more affordable

and a better fit, particularly for smaller metropolises.

“Traditional technology targeted at cities is extremely expensive,” says Nigel Jacob, co-head of Boston’s office of new urban mechanics, the

city’s research and development group.

“For small to medium-sized cities there is the need for something lightweight that doesn’t cost hundreds of thousands of dollars, that

is easy to use – that is very much like a web app.”

For many cities the annual cost of a contract is less than \$30,000, and Berkowitz says there are several ways that the software can save costs for cash-strapped local authorities. While SeeClickFix’s launch on the eve of the financial crisis might have seemed inauspicious, the pressure on local government to trim costs has been a selling point.

“For smaller cities there is a need for something lightweight – like a web app”



**Problem solving: rubbish in New Haven, above. Ben Berkowitz, opposite**

“SeeClickFix wasn’t creating the pothole, but it was making it very easy for people to tell us about it”

If more citizens report problems, it cuts back on the need for government employees, Berkowitz says. “A lot of city inspectors were dropped during the budget crisis, during which we were launched. Each of those people costs at least \$70,000 to the city, and probably more like six figures when you add up pension and everything else.”

Transferring reports from call centres to the website is also cheaper, he says: an average \$3 per transaction, compared with \$10 or \$15 per phone call.

“In some cases cities are saving money on customer service,” he says. “In many it is just allowing them to provide customer service in an age where it is expected. If the city didn’t do this kind of thing, that administration would not stay in office. People, anywhere in the world, expect feedback loops for speaking out.”

Public officials also point to broader social benefits from the company’s services. “They build community,” Boston’s Jacob says. “You see conversations happening on SeeClickFix that you just don’t on standard government tech platforms.”

Smuts in New Haven agrees. “The thing that really makes this different is the public connection and bringing in the social media aspect to it,” he says. He says the site was used to organise snowshovel brigades to clear paths for elderly residents. It has also been used for petitions, one resulting in the opening of a new grocery store in 2011 in a downtown area that lacked a food market.

“There was widespread demand [for a store], but it hadn’t really been articulated,” Smuts says. Facebook has been used to organise similar movements in other cities but, he notes, SeeClickFix “is linked to a location and so has the connection to a place in a way that is unique”.

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Berkowitz says while the company could turn a profit in the next year, his focus on international growth means it will probably take longer. The New Haven staff has grown to 20, and volunteers around the world translate the site into 12 languages.

One challenge, stemming from the environment of fiscal austerity that marked its inception and early growth, has been the low price it charges for services.

“We had to price it super low and had to limit what we could provide, because we didn’t really have any outside investment,” Berkowitz says. “We still have taken very little.” The company received \$1.5m in venture capital funding in 2011 but is not actively soliciting new investment.

“The problem that still resonates for us... is that we underpriced ourselves early [on]. We have done a good job of increasing the cost of the service to be proportional to the value, or that helps us maintain it in a way that is sustainable, but it is always easier to go up from a higher point,” he acknowledges.

Some early fears among officials that the software could open a “floodgate” of demand did not materialise, he says. Instead, the software has opened a new channel between citizens and government, and encouraged residents to team up with each other to make their cities more liveable.

“Even if it is around a small thing, like getting a pothole fixed, you start to realise really quickly that you can only say you want so much before you start to feel a little bit responsible for going out and getting it yourself,” Berkowitz says.

“You are going to realise, one, you are not totally powerless, because people are listening and, two, it takes more than just talking to make things better.” ■

PHOTO: IAN CHRISTMANN



“The problem that still resonates for us... is that we underpriced ourselves early [on]”



Creative hub:  
the teenagers  
were given a  
budget and left  
to decide how  
they spent it



## NORTH AMERICA RIP THIS RUNWAY

### Model solution

One of Washington's leading galleries solved tension with local youths by engaging them in culture via a fashion show, writes **Anna Fifield**. Photographs by **James Calder**

**W**hen people living near the National Portrait Gallery in the rapidly gentrifying Chinatown area of Washington DC started complaining about groups of teenagers congregating on the steps, Nik Apostolides got to thinking.

"The museum is on the Times Square of DC, and in 2009 we started getting letters about the teens and the problems they were causing," says the assistant director of the gallery, part of the Smithsonian Institution.

"They were acting out, using the stairs as their stage, causing problems."

Local residents had asked the Smithsonian bosses to consider closing the steps at the 7th Street entrance or hiring extra security guards to keep the area clear. Some even suggested using electronic "mosquitoes" that emit a buzzing sound audible only to teenagers or playing loud classical music that might be similarly disturbing to young tastes.

But rather than shooing them away, Apostolides thought about how to get the young people to come inside. "I was thinking, these teens are not a problem – they are an audience," he recalls, saying he did not want to return to the "fortress mentality" of the 1980s, when Chinatown was an area people did not want to venture into after dark. "We should be engaging with them."

At that time, in 2010, he became aware of an initiative, the Teens of Distinction part-time employment programme, running at the Martin Luther King Jr branch of the DC public library system right across the road. The library had a sound-proofed room where young people could make music at high volume.

"I thought that was a great way of engaging urban teens right in our neighbourhood," Apostolides says.

He began a collaboration with Rebecca Renard, who ran the teen programme at the library but is now director of strategic initiatives at the DC Children and Youth Investment Trust, and with Ryan Hill, director of digital learning at the Hirshhorn Museum, a contemporary art museum that is also part of the Smithsonian.

"We were three different organisations serving the same group of kids and trying to reach them in ways that were meaningful to them," Hill says.

"We were already looking for ways to 'sexify' the library," Renard says of the time three years ago before the collaboration began. Apostolides, Hill and Renard therefore started talking about how they could work together to serve these young people better.

While people usually think of politics and bureaucrats when they think of Washington, the city is a diverse metropolis. ➤



Just over half its residents – 50.7 per cent, according to the 2010 census – are African-American.

Many of the teenagers who were congregating on the gallery steps were from Ward 8, an area in the southeast of the city that has the highest rate of poverty, including childhood poverty, in the district. About 80 per cent of the participants were African-American.

“A lot of them had never been into the library or any of the Smithsonians before [the programmes began],” Renard says. “They didn’t see them as theirs.”

The trio brought together young people aged 13 to 19 working under Renard in the Teens of Distinction programme with youths in Hill’s Artlab+ digital media studio at the Hirshhorn to devise a programme for the summer of 2011. (Artlab+ programmes are partly funded by the Pearson Foundation, the non-profit organisation run by the Financial Times’ parent company.)

“We all voted on it,” says Alesha Myrie, then 17 and a student at Theodore Roosevelt Senior High School in Washington’s Petworth neighbourhood. She was in the Teens of

“A lot of them had never been into the Smithsonians – they didn’t see them as theirs”

Distinction programme at the library, working part time on the circulation desk, when the idea of a collaboration started.

They voted to host a fashion show, and the idea of the Rip This Runway event to be held in the National Portrait Gallery’s imposing Kogod courtyard was born.

At around the same time, Renard was at a party in New York and met Carmen Webber, a contestant on *Project Runway*, a fashion design reality television show. Renard asked if she would be willing to come to Washington and run some workshops. To her surprise, Webber agreed.

The trio left the teens who were already involved in programmes at the Hirshhorn and the library to spread the word about the show, rather than having the

institutions’ relatively old fogeys target the youths on the steps specifically.

Apostolides says a local police officer, upon hearing about the event, asked him: “What idiot

**Action plan:** the teenagers took creative control of the fashion show, including making and modelling the clothes

had the idea to let hundreds of teens take over a museum?”

The teens were similarly incredulous. “You mean they’re going to let us use this?” Renard remembers them saying. “We said that, yes, they trust you and respect you enough to give you this space.”

Hill says allowing the young people to use such a prime spot – it is also rented out for dinners and receptions – gave them a sense of ownership. “I’ve heard teens say the Smithsonian is where the dead people are. They didn’t think of it as a place for live culture,” he says. “We felt we should make the place more accessible and instead of having people hanging out outside the building, let them know they are welcome to come in.”

To prepare for the event, Artlab+ members formed a management group of “creative consultants” to advise their peers working on the event, who then formed committees to take charge of aspects of the event, such as the photography and the music. Others formed groups that prepared talks and tours of the Andy Warhol celebrity



portraits in the museum during the event.

They started soliciting volunteers and borrowing sewing machines. A marketing group began meeting at the Hirshhorn Artlab+, while a decorations group met at the library.

The trio gave the teens a budget and let them figure out how to spend it. “We needed to give them creative control and a way to tell their own story,” Apostolides says.

The end result was a fashion show in which the teenagers did everything from making and modelling the clothes to lighting and taking paparazzi-style photos. They had teens running polling stations and co-ordinating text-message voting.

Myrie, who is now doing a course in liberal studies at a Washington community college and hopes to become a translator, says she had one of the most fun roles. “I didn’t know too much about fashion but was interested in communications and media, so I worked with the camera, taking pictures,” she says. “We got to see everything that everyone was doing.”

**Crowd puller: as many as 750 people participated in fashion show-related events during the day and evening**

The gallery was open on the day, meaning there was a lot of overlap between the Saturday museum-going crowd and the teens taking part in the show. The organisers estimate as many as 750 people participated in fashion show-related events during the course of the day and evening, culminating with the catwalk parade.

Hill says the show gave the teens an outlet. “The reason they were hanging around on the steps and showing off to each other was because they were trying to develop their identities,” Hill says. “We just have to get out of their way and give them access to resources so that they can be creative.”

One surprising result, Renard says, was that the young people wanted to open up the runway for everybody after the show. She admits to thinking this sounded weird but went along with the idea. In the end, the open runway, when friends and parents could strut their stuff, was a highlight of the night.

“No one was looking at them, but they were up there, claiming their space,” she says. Apostolides chimes in: “That’s basically what they had been doing out on the stairs anyway.”

The institutions’ representatives hold up the show as an example of the way organisations

such as galleries and libraries must change to remain relevant to their local communities.

“We were telling them that what they were doing was valuable and that they were contributing to society,” Hill says. “We were making them into cultural producers, taking them from consumer to creator.”

Apostolides says he does not want simply to repeat the fashion show but to set up a broader, more structured programme with the proper resources. Hill adds that the disadvantaged backgrounds of many of the youths create problems that need the expertise of social workers.

“We don’t want to just drop in, change their lives and send them

back to the same old drama,” he says, adding that the event sparked in them a desire to create a learning network, or a “hive”, where the organisations serving the same audience can pool resources to and collaborate on a much wider scale.

There are other challenges. The library staff in particular are being pulled in all directions, while all the institutions face budgetary constraints that have effectively put them in survival mode. Although the fashion show cost very little to put on, such events demand the investment of staff time and institutional resources, they say.

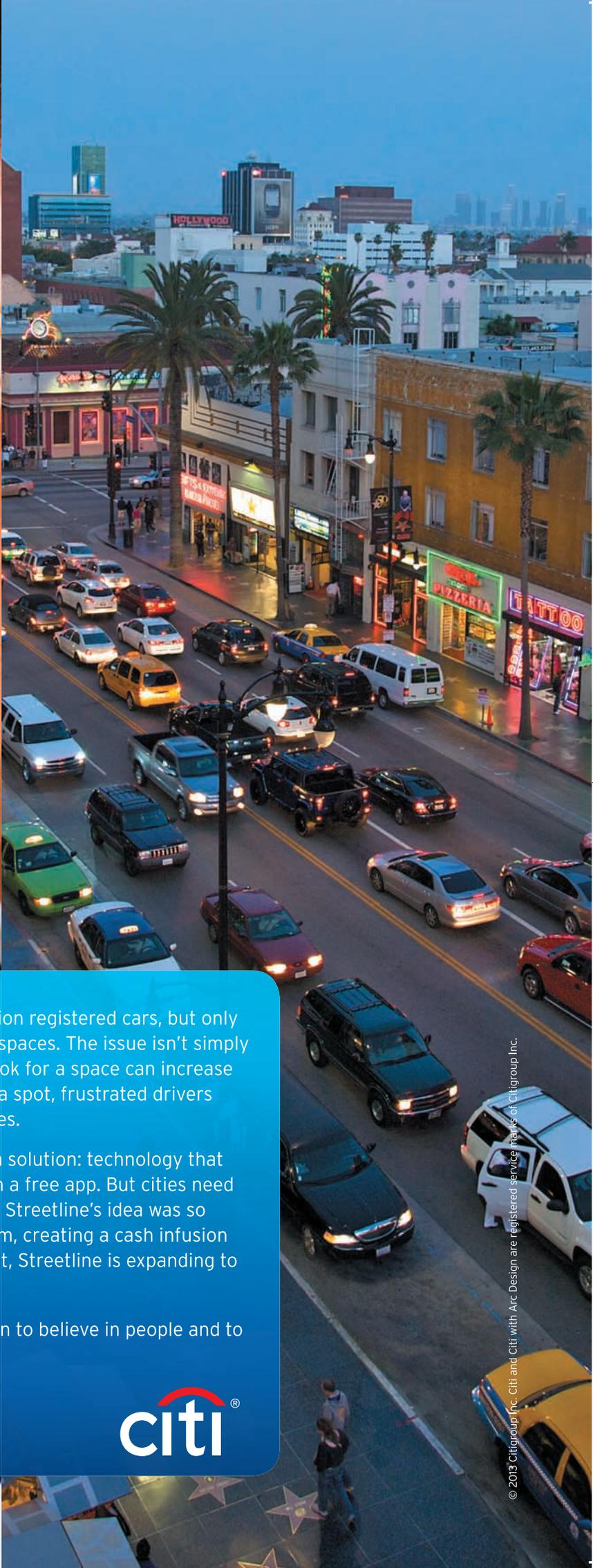
“It was an easy collaboration. If there is funding dedicated to this kind of programme, we can make these events happen more regularly,” Hill says.

Although the show was a one-off event, Apostolides says the effects have proved enduring: complaints about unruly teens on the gallery steps have stopped. ■

“We just have to give them access to resources so that they can be creative”



*WHY A BANK  
SHOULD CARE ABOUT  
A PARKING SPOT*



Los Angeles County has over 7.4 million registered cars, but only a fraction of that number of parking spaces. The issue isn't simply parking, though. Driving around to look for a space can increase CO<sub>2</sub> emissions. And if they can't find a spot, frustrated drivers leave, which is bad for local businesses.

Streetline, Inc. has been developing a solution: technology that helps people find parking spaces with a free app. But cities need funding to make it practical to adopt. Streetline's idea was so innovative, Citi collaborated with them, creating a cash infusion that reduces up-front cost. As a result, Streetline is expanding to cities around the globe.

For over 200 years, Citi's job has been to believe in people and to help make their ideas a reality.



# CARIBBEAN THE COMPETITIVENESS COMPANY

**I**n the slums on Jamaica's south coast, far from the glitzy tourist resorts of the north shore, the nascent industry of ornamental fish farming is offering young urban entrepreneurs a chance to escape poverty, end a cycle of violence and be part of a \$4bn global market.

Urban fish farmers clustered in the outskirts of Kingston, the capital, are competing increasingly with long-established industries in Singapore, Malaysia and even Spain to send tiny fish around the world. Aquarium keeping is one of the world's most popular hobbies, with Jamaica's fish destined mostly to be displayed in tanks in the US, the world's largest importer.

The Jamaican fish farms are the brainchild of The Competitiveness Company (TCC), a local non-governmental organisation funded mostly by the US Agency for International Development plus private donations and proceeds from its own projects. TCC's core mission is to create jobs for inner-city youths, improve standards of living and, ultimately, reduce drug and gang involvement.

But five years after an initial grant of \$600,000 by the Bill and Melinda Gates Foundation to kick-start the fish-farming project, the social and economic impact has far exceeded its creators' initial vision.

"We could not foresee the impact that these farms, the tiny little fish and the responsibility of keeping them alive would have on our farmers and on their communities," says Nicardo Neil, TCC's project manager.

Neil, 27, was born and raised in Waterhouse, one of Kingston's most violent urban communities. For the past three years, he has worked tirelessly to get the programme off the ground. ➤

**Going with the flow: Marcelino Blackburn tends his fish farm in Jones Town, Kingston**

## Pet projects

Urban fish farms in Jamaica are giving young people a way to earn a healthy living and avoid crime, reports **Vivianne Rodrigues**. Photographs by **Gilbert Bellamy**







**Expert guidance: Marcelino Blackburn, above right and below, and a TCC technician check on the fish**

do that would help them earn a real living, not just a minimum wage,” says Beverley Morgan, head of TCC. “What could they do or sell that there would be a global market for?”

The answer, she recalls, came after months of research in which she frequently spotted street vendors selling plastic bags of goldfish alongside cheap electronics, shoes and bananas. She also saw youngsters scavenging dumpsters for old refrigerators and other large containers to convert into tanks for their pet fish. “It was heartbreak-

This involved training more than 100 fish farmers, installing 100 aquaculture systems with the capacity to grow 1.2m fish for export, obtaining international certification and marketing 30 varieties of pet fish to the US, Canada and the UK.

The project is meant to provide an alternative to gang life, although it has also put at risk some young men who defy their neighbourhood gang bosses, known as “dons”, organisers say.

Along with providing a chance to earn a living and learn new skills, the project has instilled in its participants a sense of pride, ownership and accountability –

much needed in Jamaica’s most disenfranchised communities. “For many of the people in our programmes, these small farms are the first thing they have ever owned,” says Neil. “For them, this is a life-changing experience.”

The architects of the project, rather than trying to introduce something foreign, drew on a popular hobby in Jamaica. Fathers or older siblings and mentors have traditionally passed down the know-how of raising ornamental fish to younger generations of boys.

“We asked ourselves what young males, in violent areas with very limited space, could



# CARIBBEAN THE COMPETITIVENESS COMPANY

ing but also inspiring to see, at the same time, such a level of destitution and such a level of resourcefulness,” she says.

There are now more than 130 TCC urban fish farms, spread over more than 50 communities in four of Jamaica’s 14 parishes.

To set up a small ornamental fish operation, people interested in the project have to attend a two-week introductory course on recycling aquaculture systems (RAS), a technology that makes it possible to grow fish in very small spaces such as backyards and roofs, indoors or outdoors.

Participants also learn about how the area surrounding their farms and their own hygiene affect the health of their fish and their earnings potential. As a result, prospective fish farmers have cleared up not only farm sites but also surrounding areas, transforming previously derelict and garbage-filled spaces.

Participants who show a high level of attendance and commitment receive grants from TCC in the form of equipment. That includes \$2,000-worth of tanks and water pumps, as well as initial fish stock, feed and hands-on training from technicians and field workers. The goal is for each farmer to establish a self-sufficient operation, capable within as little as 60 days of producing up to 4,000 fish a month for sale.

“Our farmers understand from the start that they will become part of a global value chain other than the drug chain,” says Morgan. “In essence, they will become small-scale international businessmen.”

Marcelino Blackburn, who lives in Jones Town, an inner-city community in west Kingston, is one of them. On a sweltering August day, he rushes to feed hundreds of tiny fish and check on water quality in several tanks neatly lined side by side, after



**Social mission: TCC aims to raise living standards in Kingston, above and opposite centre left**

heavy rains typical of the season. It is his second feeding round of the day, and he will be there at least once more before nightfall.

He has formed a bond with his fish. “These are a bit like my babies,” he says. “I feed them at least three times a day, keep the water clean, at the right temperature and make sure they don’t get sick. When they grow bigger and strong, they will go away.”

A typical model RAS farm requires less than 40 sq m of space and has capacity for 12,000 fish. Blackburn’s venture is more ambitious. Alongside two other farmers, he leased a 140 sq m empty lot near his house to combine three small farms, which now produce 15 species of popular ornamental fish, including Cichlids, Tetras, Gouramis, Jewel and Angel fish.

A combined farm such as Blackburn’s can generate net income of almost \$26,000 a year, which is split equally between farmers, fish exporters and TCC. In a country with a \$15bn annual gross domestic product and average per capita income of about \$9,000, that offers enough

economic hope to prospective urban fish farmers.

Nearby, Annemarie Harrison tends a neatly assembled farm under the shade of fruit and nut trees in her family’s small backyard. The farm was started by her father in 2012, and Harrison took it over after “falling in love” with the activity. With the help of her mother and sister, she now produces four varieties of fish.

TCC targets young men, the demographic most likely to be both perpetrator and victim of Kingston’s high murder rates. But the number of retirees and

unemployed women, such as the 24-year-old Annemarie, applying for training has exploded in recent months.

Shane Willis, director of the National Aquaculture Training Institute in Australia, says farms such as Blackburn’s and Harrison’s could enable Jamaica to capture at least 1 per cent, or 15m fish, of global ornamental fish exports, worth \$300m-\$400m a year.

“The climate is good here and there is a significant logistical advantage given the country’s proximity to the US,” says Willis, who has been a technical consultant for TCC. “In addition, Jamaica’s industry is new, meaning there is less disease among the fish, and that has been a hurdle for some larger exporters.”

The growing impact of the farms in places such as Jones Town, and the project’s potential to help establish an alternative export avenue for Jamaica, has attracted attention from the government. G Anthony Hylton, Jamaica’s minister of industry, investment and commerce, is considering granting tax and

duty-free exemptions for ornamental fish exports, and may establish a “fish hub” – building an export facility near the airport that would help minimise fish mortality and expedite documentation.

Back at his farm, Blackburn is upbeat. With or without government help, he aims to open an investment account for the farm and use the money to expand its breeding stations.

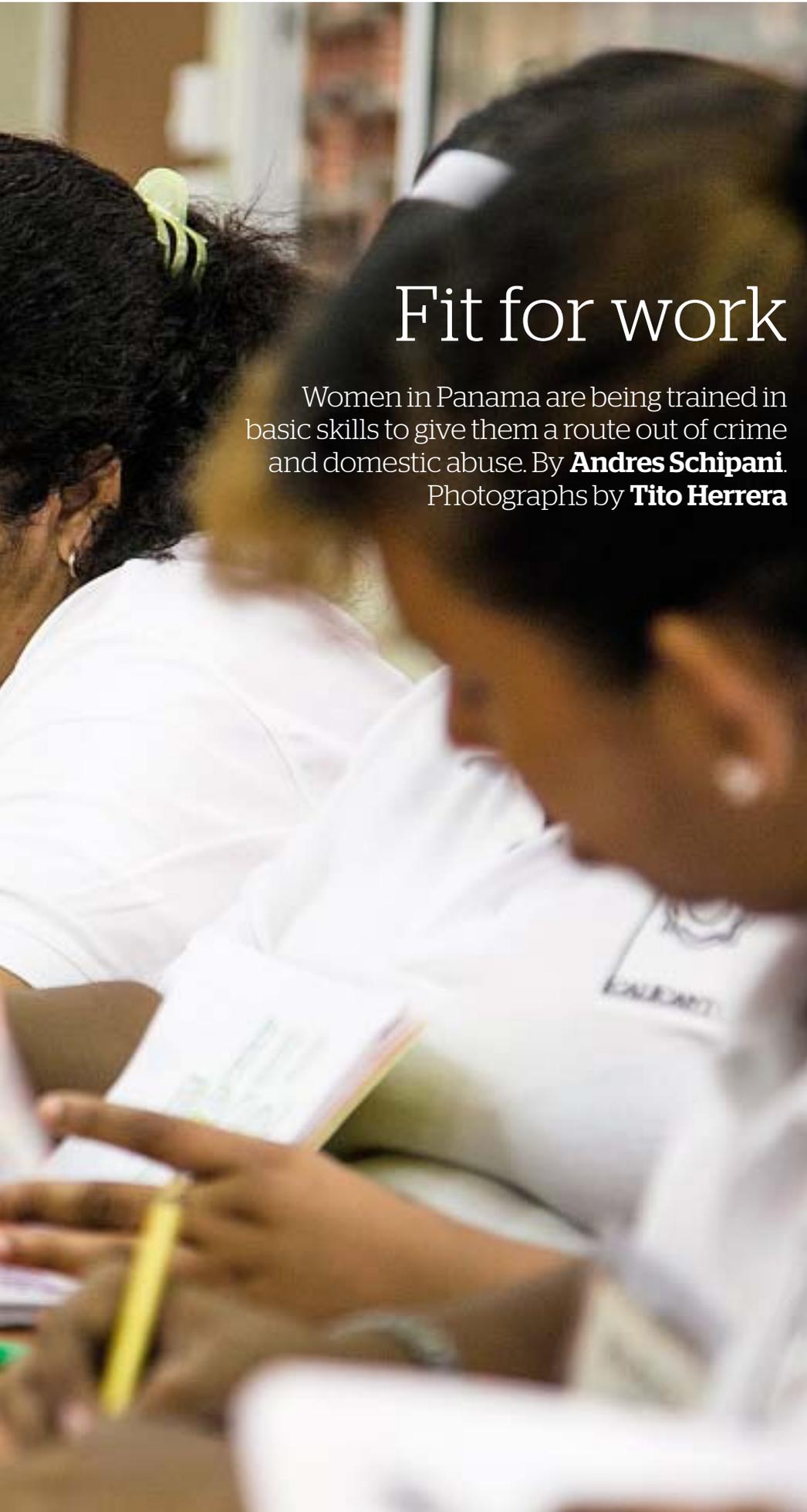
“If I am able to breed more fish in my farm, I can cut out middlemen and be more in control of the whole thing,” he says, smiling. “It’s going to be big.” ■

“Our farmers will become part of a global value chain other than the drug chain”

LATIN AMERICA  
FUNDACIÓN  
CALICANTO



Back on course:  
marginalised  
women are being  
given the chance  
to improve their  
employability



# Fit for work

Women in Panama are being trained in basic skills to give them a route out of crime and domestic abuse. By **Andres Schipani**.  
Photographs by **Tito Herrera**

One sweltering afternoon in Panama City in a rickety, pale blue room overlooking the Pacific, Yann Tiersen's "La Valse d'Amélie" plays softly. Six women, all of them black or mixed race, in white polo shirts and black trousers, are doing a mime to express their feelings – anger, rage, anguish.

One seems particularly into the acting exercise. Those sentiments are all too familiar to her – Luzkeira Pérez is a former gang leader.

Raised in a dysfunctional family, she was forced by her father and mother to deal drugs when she was only 10 years old, went to prison for the first time when she was 13 and has served two more sentences since, including one for attempted murder and arms dealing. She has been shot twice and stabbed several times.

Her former partner, the father of her 10-year-old daughter, was killed by a gunman in mid-July. A week later, she decided to take care of her 10-year-old nephew after his mother was stabbed 17 times and his father shot 16 times by a rival gang.

After "discovering God" in prison she realised the clock was ticking for her as well. After all, she lives in the violent El Chorrillo neighbourhood, once a recruiting ground for the Dignity Battalions, the paramilitary thugs of former dictator Manuel Noriega, and now home to many of Panama's most ruthless gangs. To support her family she is on the streets every night selling coffee and *empanadas* (stuffed bread).

But now, during the day, she is preparing to become fully integrated into the life of the city, thanks to Fundación Calicanto – a community-wide effort to help ►

# LATIN AMERICA FUNDACIÓN CALICANTO



marginalised women seize opportunities in fast-growing Panama.

“I have dedicated my life to many bad things, but I want to change my life, reintegrate into society and achieve new goals,” says Pérez. “I want to show it is possible – one can move on. In many places in Panama people discriminate against us; people believe we could never change.

“I found this place where they really helped women to discover themselves, to create goals, a future.”

Fundación Calicanto’s programme offers women such as Pérez basic life and work skills, including courses on self-esteem, personal health and grooming, English, family relations, conflict management and customer service.

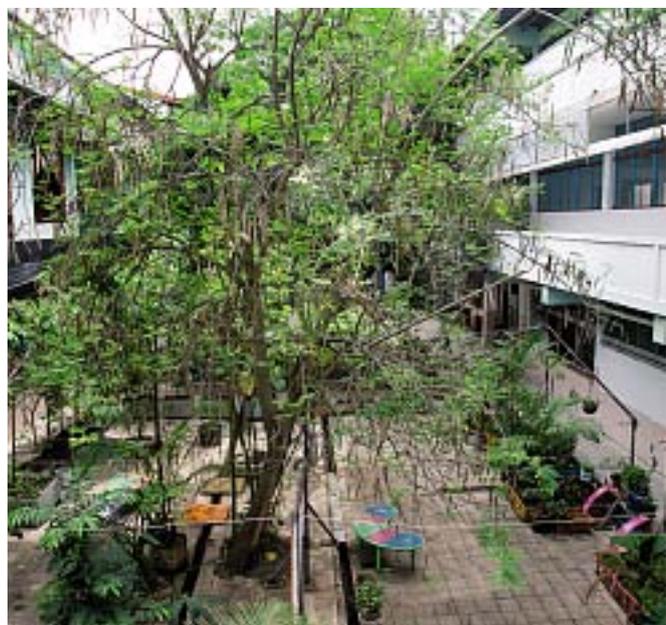
The six-week hands-on educational programme, called Capta (which means to catch or attract in Spanish and stands for “training for work”) was established in 2006 by Hildgard Vásquez, a US-trained architect. Her focus was originally just the revamping of Panama City’s old town, the Casco Antiguo – a Unesco world heritage site – where Capta is based.

The old town is both a relic and deprived, where people from all social strata live and work in a range of Spanish, French, Caribbean and art deco buildings. Such a social mix is very rare in Latin America, which is marked by inequality. “This little

bit of Panama could serve as an example of urban development because, in the end, an ‘exclusive’ city works fine for just a few,” says Vásquez.

The area began to change during the country’s general economic boom after the US handed over control of the Panama canal in 1999. The country is expected to chalk up an impressive 9.5 per cent growth in gross domestic product this year.

Those new market forces are, though, having a drastic effect on where people can afford to live. “People are the human heritage of the neighbourhood and if they can’t work or afford where they live, they have to leave,” says KC Hardin, a US devel-





oper involved in long-term and socially responsible investment projects in the old town.

“A sea change is coming. And if the tide is rising very fast and people have no boats, someone has to provide the means for them to buy boats – that is what Calicanto does.”

In most countries in Latin America, not least in Panama, public policies tend to encourage economic segregation, he says. “They tend to push the rich into enclaves within the city and the poor further out into what eventually become [favelas].”

But as Panama grows as a tourist destination, Calicanto has created a niche to provide opportunities for local residents. The attraction of the old town for tourists heading for the Pacific and Caribbean beaches has seen boutique hotels and restaurants mushroom in recent years.

Calicanto provides those hotels with the “sustainable factor” of their business, says hotelier Matt Landau, as “these women are a natural fit, offering true hospitality”. The organisation boasts a 74 per cent employment rate for its trainees, with some of the foundation’s graduates even finding jobs elsewhere in Panama City, away from the Casco Antiguo – at the Trump Ocean Club or

“Calicanto offers women the self-esteem they need to be trained to have a good job”

Copa Airlines, Panama’s national carrier, for example.

“Calicanto is attacking a real problem in Latin America for women,” says Stanley Motta, chairman of Copa Holdings, the parent company of Copa Airlines. “It offers them the self-esteem they need to be trained to have a good job.”

Increasingly, word of mouth has brought in women from all over the city, including far-flung shanty towns. The success of most of Calicanto’s near 600 graduates has prompted some members of the board to develop a similar pilot scheme for men, most of them gang criminals.

A truly mixed community would create a culturally lively and sustainable neighbourhood, and furnish everyday interactions between some of Panama’s richest and poorest people – thus helping to avoid segregation and, some say, crime. If replicated across the many deeply divided urban sprawls of Latin America, the payoff could be substantial.

“These life examples not only indicate a positive attitude towards life but are also contagious. They effectively reduce

violence inside and outside people’s homes,” explains Rosa Castro, a social worker with the National Women’s Institute of Panama, part of the ministry of social development. She believes the experience of

these women is having a ripple effect. “An empowered woman contributes to the development of society,” she says.

But people both from the public sector, like Castro, and the private sector, like Motta, agree that Fundación Calicanto offers lessons of wider relevance that could benefit urban popula-



Going places: Panama’s expanding tourism sector is just one destination for graduates of the course

tions across the globe. “The dreams and goals multiply easily: first they reflect on to these women’s own families, then on to society and then even on to other societies,” explains Castro.

Nevertheless, many of these women have not found it easy to make the decisive first step, having for years been victims of domestic violence and reluctant to leave their homes, not only because of possible acts of retaliation but also because they were financially dependent on their husbands or partners.

“We are poor, but I had never worked in my life before. I didn’t know what showing up at a specific time was, or why it was necessary to say ‘good morning’. I was just used to stay at home, taking care of my husband and doing what he said,” says Julia Sánchez de Mena, who lives in the old town and is one of Calicanto’s first graduates.

“At first he was jealous, even raging. I was afraid one day that he would hit me. He simply couldn’t understand I was leaving the house for eight hours a day in order to become a better, more complete woman.”

Following her example, her daughter recently enrolled at university to study hotel management – she is the first in her family ever to set foot in a higher education institution.

Julia, now a chambermaid at Canal House, one of the old town’s top hotels, sings and chuckles as she tidies a bedroom – the very one actor Daniel Craig stayed in a few years ago during the filming of *Quantum of Solace*.

“Thanks to the manners and basic English I learned at Calicanto, I was able to serve him well,” she says proudly. “I can now say I served breakfast to James Bond, and he was grateful to me. Tell me, how many people could say that?” ■



LATIN AMERICA  
BELO HORIZONTE

## Learning curve

One of Brazil's biggest cities is breaking new ground with a public-private finance model to solve its schools shortage, reports **Samantha Pearson**. Photographs by **Leo Drumond**



**T**he residents of Belmonte, a poor neighbourhood on the northern outskirts of Brazilian mining city Belo Horizonte, have heard and seen it all. Between May and July, police arrested 14 gang members suspected of operating a “dial-a-drug” delivery business in the region. One of the gang was a military police officer, who allegedly used the code word “barbecue” to warn the others when his colleagues were planning a raid.

But when workers started erecting a “flat-pack” school among the neighbourhood’s makeshift houses early this year, curiosity got the better of even the most world-weary of locals, says Danilo Andrade, the project’s chief engineer. “Many people came to see what was going on,” he says, casting his eye over the angular red and turquoise structure, topped with a distinctive cone spire.

The building is the first of 32 state nursery schools, known by the abbreviation Umei (municipal infant education units), to be delivered over the next 16 months under a new public-private partnership (PPP) scheme.

Belo Horizonte’s municipal government says it is the first PPP to be implemented in the education sector in Brazil. It forms part of the city’s integrated urban and social policies aimed at reducing inequality and improving the quality of life in Brazil’s third-ranked urban area in gross domestic product terms.

While PPPs have been a staple business model since the 1990s in countries such as the UK and Canada, Brazil has been averse to PPPs for political and practical reasons. “The idea of passing activities over to the private sector is very recent and has been difficult to implement.” ➤

**Open house:**  
the Capivari  
nursery in Belo  
Horizonte,  
where there is  
a broad social  
mix of children



says Custódio Mattos, the city's development secretary.

"Politicians are not used to the concept and it has met resistance on ideological grounds, largely because of the leftist tendencies of the ruling government," he says, referring to the Workers' Party. "It is also often difficult to gather all the financial guarantees necessary."

However, as Brazil struggles to resolve its infrastructure bottlenecks, the PPP model has been accepted grudgingly by its critics as a way to fast-track developments and cut costs.

After beginning discussions in 2009, Belo Horizonte's government opened the bidding process in March 2012 and awarded the concession the following June to Odebrecht, the Brazilian conglomerate that has operations in countries from Austria to Libya.

Odebrecht must build 32 nursery schools for infants up to six years old and five primary

schools for 6-14-year-olds in the city by the end of 2014. The company is also responsible for the maintenance of the schools, and services such as cleaning and security, for the next 20 years.

"The PPP was chosen as it was clear the [needs of the education sector] were immediate and intense, while the resources were scarce," says Mattos.

Brazil's poor education system has been blamed for skills shortages in areas such as engineering and threatens to stunt long-term socio-economic development.

Although improvements have been made since 2000, the Organisation for Economic Co-operation and Development's most

recent Programme for International Student Assessment survey in 2009 ranked Brazil below countries such as Russia and Turkey. Only about half of Brazilians aged 25 or over have finished primary school, according to Brazil's 2010 census.

Critics have accepted PPPs as a way to fast-track developments and cut costs



**Model design: Umeis, such as the one in Belmonte, above, follow the same architectural template**

Almost 14m people aged 15 or above are illiterate – nearly one in 10 in that age range. The PPP is expected to create 14,000 new places at nurseries and another 4,800 at primary schools.

After increasing the capacity of primary schools over recent years, cities such as Belo Horizonte have shifted their focus to improving the quality of primary school education and increasing the number of nursery places.

While the nurseries reserve 70 per cent of their places for vulnerable children from poor families, 20 per cent are allocated through an open draw, attracting wealthier families who want to avoid the costs of private education. The remaining 10 per cent are allocated to children living near the school.

Andrea Lima, a teacher coordinator at the Capivari nursery in the south of Belo Horizonte, an Umei that was built before the PPP, says mixing the children works well. "The kids from





the poorer families are used to doing more things by themselves, so they help the others to be more independent," she says. "Then when it comes to tasks in the classroom, sometimes the others take the lead."

The nursery also teaches the children about basic hygiene and follows a strict teeth-brushing routine, Lima says. "They love it because they can go back and tell their older brother or sister that they're doing it wrong," she says.

In October 2012, Brazil's lower house of Congress approved a national education plan that sets a target for public education spending at a highly ambitious 10 per cent by 2020. President Dilma Rousseff has been pushing to use revenue from future oil royalties for education, but it is not clear when or if these funds will materialise, says Mattos. Indeed, while the PPP model offers economies of scale, its key benefit is the speed of execution, the government says.

The scarcity of skilled labour in the construction sector, combined with bureaucratic hurdles and poor long-term planning, means building projects are notorious for delays. In August, Brazilian sports minister Aldo Rebelo issued another warning over delays to stadiums for next year's football World Cup.

In Belmonte, Andrade calculates how long it will take to erect the two-storey, 1,100 sq m building. "About eight months," he says, apologetically. "We can do it in six, but when we started this one we had problems because of the rainy season." Identical units built by the government normally take between two and two and a half years to put up, says Sueli Baliza, Belo Horizonte's education secretary.

**Up and running: the PPP model should offer shorter construction times than have been the norm in Brazil**



Under the concession, Odebrecht will invest R\$190m (\$80m) in the project. It will subcontract another company to help administer the schools during the 20-year maintenance period.

Linking the concession to maintenance is key for two reasons, says the government. First, it ensures high-quality, durable materials are used, as it is the construction company that will bear the cost of repairs. Second, teachers and directors of the unit can concentrate on pupils, rather than on issues such as the cleanliness of toilets.

All the Umei units will follow the same architectural model: they will have space for 440 children and infants, with 20 classrooms, a crèche, a canteen, and an elevator for disabled children. The cone spire is also obligatory as it allows the nursery to be visible for miles around. Even the colour of the walls is carefully planned – too many bright colours can make the children even more boisterous, Andrade says.

The schools' architectural model also dictates that fences around the school are low enough for interaction with the outside community – a favourite

feature among anxious mothers, says Lima. "It can be hard for mums to let go at the beginning – they like to come by and keep a check on things," she says.

Other states are considering using the PPP model to speed up the construction of schools. However, the way in which the model is applied is key, says Mattos. São Paulo tried to use the PPP model to build schools a few years ago, but the project fell through because of issues such as land disputes, he says.

Another challenge with the PPP model is the quality and availability of teachers. Earlier this year, nursery teachers went on strike for more than a month, demanding higher salaries and better career prospects – the latest action in a struggle with the government that has been going on for more than eight years, says the Union of Public Education Workers in Belo Horizonte.

"Nursery teachers need to be recognised as real teachers," says Luiz Roberti, a director of the union. "They go through the same training as other teachers, so why shouldn't they be paid the same and have the same career prospects?" ■



## LATIN AMERICA APRENDA

**S**anta Clara would be a dustbowl were it not for its tight patchwork of adobe houses, *bodegas* (convenience stores) and car workshops. This poor district of Lima was all desert until Peru's bloody Maoist-inspired uprising of the 1980s drove tens of thousands of Andean farmers from their homes to shanty towns in the capital.

Pilar Pucllas grew up here. For much of her life she sold food to passing motorists on the highway that cuts through Santa Clara en route to the Andes. But for the past year, she has been the proud proprietor of a hole-in-the-wall *cevicheria* (raw-fish restaurant) in Santa Clara's central market.

"One day my daughter said to me, 'Why don't you try and open your own place?'" she says. "There was a space for rent in the market, so I thought, why not?"

One afternoon, Pucllas tucked her curly hair into a purple woolly hat and left her husband cleaning pots and pans while she made her way across the road to a community hall for a business seminar with a difference. While two teams of young boys kicked a football around the adjacent paddock, Pucllas and about 150 other female small business owners settled down to watch a *telenovela* (television drama serial), *El Gran Salto* (*The Big Leap*).

The music swells as Zoila, a talented seamstress, tells her friend, the owner of a local restaurant, she is struggling to pay the bills. "Why don't you start your own business?" her friend suggests. "My restaurant wasn't always this successful. You just have to begin. You can do it."

It is an inspiring moment for Zoila, who turns out to be a feisty protagonist. Heading off to Lima's garment district to shop for material and make

## Watch and learn

A women's business education programme in Peru uses television drama to get its message across, writes **Naomi Mapstone**  
Photographs by **Max Cabello**





Taste of success: Pilar Pucllas was inspired by Aprenda to set up a cevicheria in Santa Clara



contacts, she pauses to give herself a pep talk: “You can do this! Yes, you can!” With its uplifting music and underdog story line, *El Gran Salto* is reminiscent of *Working Girl*, the 1988 movie starring Melanie Griffith.

Aprenda, the education and training unit of the non-profit organisation Grupo ACP, Peru’s biggest microlender, runs the course with the support of the Inter-American Development Bank, the Australian government aid agency AusAID and the Thunderbird School of Global Management in the US.

Aprenda has travelled the length and breadth of Peru to deliver the *Gran Salto* course to women in the mountains, desert and jungle. Peru’s formidable geography is a barrier to delivering services, so some facilitators have used canoes or four-wheel-drives to reach their target audience – entrepreneurial but under-educated women.

Santa Clara’s audience includes owners of small grocery shops, restaurants and beauty services, and home-based hair-dressers and tailors.

With Peru’s economy forecast

to grow at 6 per cent this year, there are abundant opportunities for small businesses in the rapidly growing domestic retail, leisure, travel and service sectors.

“We had to think about what method would work best with this socio-economic class,” says Claudia Becerra, general manager of Aprenda. “They don’t have a lot of time. Many are up at 5am, they have families as well as their business to manage, and they don’t have much experience with formal education. We wanted it to be entertaining and easily accessible. They need to feel like it’s a social event as well.”

Miriam Vásquez, head of projects and operations at Aprenda, says motivation and boosting self-esteem are key parts of the course. “For many of these women, this is the first time anyone has asked them what their dream is. Or told them that they are important in their own right – not just as mothers or wives but as businesswomen. They have in common a great

**Rich seam:  
Herlinda  
Martinez  
values the  
independence  
having her  
own business  
has brought**

“This is the first time anyone has asked many of these women what their dream is”

desire to improve, learn and get ahead, but many never got to finish school. The certificate they get at the end of the course is often their only qualification.”

A typical course runs for two to three hours, interspersing episodes of *El Gran Salto* with light-hearted guidance from facilitators that is part talk-show, part motivational seminar. They focus on the challenges and problems being tackled by Zoila and other on-screen characters: Zoila struggles to balance her family responsibilities with a growing business, her husband’s macho world-view, her first attempts at networking and marketing, the development of her business plan, the difficult moment when a client is not happy with her work, and the paperwork and office visits she makes to formalise her business.

A simple workbook is given out to the women, to encourage them to voice their dreams, recognise their passions and talents, separate their personal and business responsibilities, create a business plan, manage a balance sheet and deal with customer complaints positively.

“I’m independent now. I don’t work for anyone else. Watching that video, I thought, ‘I can do that’”

“No one has the right to put down your dreams,” the Santa Clara facilitator tells her audience gravely. “Are you going to fulfil your dreams?”

“Yes!” the audience replies, somewhat hesitantly at first.

Making a face, the facilitator asks again, this time favouring the left side of the audience. “Are you going to fulfil your dreams?”

“Yes!” they reply, with more gusto.

“You can stand up! Wave your hands in the air if you like,” the facilitator says, turning to the right side of the room. “Are you going to fulfil your dreams?”

“Yes!” they yell, jumping up.

Elizabeth, a natural products saleswoman, is won over by the presentation. “I am always looking for ways to improve myself,” she says. “I sell biscuits, cereals and other products in the market. This has made me think about what else I could do. They have explained things beautifully – my dream would be to have a vegetarian restaurant, and now I am on my way.”

According to Datum, the independent Lima-based pollster that carries out course assessments, 96 per cent of respondents were very satisfied with the course, 84 per cent found it easy but helpful, and 75 per cent started to register their personal and business incomings and outgoings after the course. Datum also found the women tended to share the knowledge they gained with friends and family.

“These women know how to manage cash flow but don’t know what it is,” Becerra says. By the end of the course, the women have models for separate household and business budgets and cash flow charts.

Herlinda Martinez, proprietor of The Magic Needle tailoring shop in the working-class Lima

suburb San Luis, took the course in 2011. Her eyes fill with tears when asked what it meant to her. “I’m independent now,” she says. “I don’t work for anybody else. Watching that video, I thought, ‘I can do that.’”

Martinez, a mother of two, grew up in the town of Huancaayo in the central Andes region of Peru and lived in a mining town before finishing high school in Lima. She gave up a low-paid but secure secretarial job she enjoyed to raise her children, and spent more than a decade outside the paid workforce.

“When I gave up my job my husband said, ‘It’s your son or your job.’ Now I help my husband daily – I don’t have to rely on him for every little thing. I have my own money.”

She is not a talented seamstress herself, but a relative pointed out that the local market had no tailoring shop, so she hired an employee and rented a small space.

She has expanded her client base since taking the course and has invested her capital in a professional sewing machine and other equipment. Her goal is to make the business formal, registering with the tax authority and applying for a loan to open a second location closer to her home. After that? “Maybe a chain of Magic Needles...” she says shyly.

Haydee Nancy, a fellow seamstress who took the course with Martinez, differs in that sewing is her passion. Surrounded by piles of children’s party dresses, formal suits and material swatches, she is in her element. “I learned to sew making my own clothes,” she says. “I am an artistic person – I like designing.”

“I don’t want to make my business too formal. But the course gave me lots of ideas. I am better at dealing with clients, listening if they have complaints. Is there another course soon? I would like to go again.” ■

**Double bill:**  
**the Gran Salto course follows up the on-screen drama with lighthearted tutorials**



LATIN AMERICA  
IBM



Crowd puller:  
Pilgrims gather  
for mass with  
the Pope on  
Copacabana  
beach in July  
this year



## Big picture

As the host of a series of vast public events, Rio de Janeiro is marshalling big data to ensure key services run smoothly, writes **Joseph Leahy**

**P**edro Junqueira remembers one of his most stressful days at the office recently – the visit of Pope Francis to Rio de Janeiro. But stress for Junqueira is on a different scale than for most people.

He is head of Rio de Janeiro's operations centre, responsible for 24-hour monitoring of Brazil's Cidade Maravilhosa (Marvellous City), with its population of more than 6m, chaotic traffic, vast favelas, huge events such as the annual carnival and changeable tropical weather.

"It was very [outside] the box," Junqueira says of the Pope's visit. The pontiff opted unexpectedly to use an ordinary family car to tour the streets, rather than the Popemobile favoured by his predecessors or the armoured vehicles used by politicians. He also made sudden deviations from planned routes and schedules to get closer to the crowds, which at times numbered more than 3m. "We knew our Pope already, so we were prepared for sudden changes. It wasn't a huge problem – it was more the 'emotional' effect of it," Junqueira says with a grin.

If the Pope's visit kept the centre on its toes, it is hard to imagine how the city would have fared prior to the opening of the operations centre in 2010. The ➤

# LATIN AMERICA

## IBM

state-of-the-art facility, with its 80 sq m master screen and staff of 400 in their white overalls working three shifts a day, looks more like Nasa's Mission Control than something you might find in a municipal government.

But the centre's sweeping technology, which uses a platform set up by US-based systems giant IBM that incorporates big data to help the city predict, manage and recover from major events and crises, may be as innovative in its own way as the space centre.

In the age of the megalopolis, when city states are re-emerging as the premier political, social and economic building blocks of the nation, finding better ways to manage them has become a priority. Natural disasters, terrorist attacks, accidents, protests and traffic jam-causing sports events can create prob-

lems that can balloon into crises if they are not managed properly, with immeasurable costs to the city and the nation in terms of lost productivity, damage or even loss of life.

In Rio, which is hosting the football World Cup final next year and the Olympic games in 2016, the question of crisis management is more urgent. Brazil's mass protests this June about

poor public services have added a political dimension to the issue.

"As local service delivery grows in complexity, its vulnerability grows even faster. Flooded subways, power outages, fuel

and food shortages, disrupted distribution networks – cities are particularly vulnerable to disasters," World Bank blogger Dan Hoornweg has written about the importance of operational centres such as Rio's.

"As local service delivery grows in complexity, its vulnerability grows even faster"

**All systems go: the operations centre can alert favela residents to impending mudslides, while July's papal visit went off smoothly**

Inaugurated in December 2010 by Rio mayor Eduardo Paes, the centre was inspired by the tragedy of April that year, when 68 people died in landslides caused by heavy rain in Rio de Janeiro state. The mayor found the city had no oversight facility to co-ordinate services during an emergency. In management-speak, he wanted to "break down the silos" among service providers and those of other levels of government, and introduce better co-ordination between them.

While famous for its beauty, Rio's mountainous topography generates volatile weather as clouds coming directly from the ocean crash into the steep slopes of the city's hills, many of which are covered by favelas. To complicate matters, the mountains create micro-weather systems and water drainage issues.

Which side of the mountains it rains on determines where it runs off and flooding can occur, says Antonio Dias, IBM Brazil smart cities director.

The new centre was built in four months and brings together some 30 state and municipal entities in one "situation room". Police and municipal guards sit on the left, transport-related services in the middle and others, such as meteorologists, cleaning services and electricity, on the right.



On the wall is a green light indicating the lowest level of alert – “vigilance”. This elevates to “attention”, then “alarm”, then “maximum alert”. At the heart of the centre’s software is IBM’s virtual operations platform, which acts as a web-based clearing house, integrating information entering the system via phone, radio, email and text message.

The facility, which IBM calls an intelligent operations centre, uses 570 cameras around the city and another 350 from private sector utility concessionaries and the public security authorities. In the middle of the vast screen is a “smart map” that can be overlaid by up to 120 layers of information in real time, such as GPS tracking of buses, city guards and traffic.

The centre uses analytic models developed by IBM to predict emergencies. The city also purchased a weather radar in 2010, which has a range of 250km and enables it to monitor rainfall.

IBM has developed systems to predict heavy rain 48 hours in advance and the areas that will be worst hit, using radar and data gathered from river basins, topographic surveys and historical rainfall logs. The city has a system of sirens to alert residents of weather-related danger, particularly in favelas on slopes vulnerable to mudslides.

IBM has also developed crime control centres for New York and Madrid and a traffic congestion fee system for Stockholm, but it says the Rio centre is the first in the world to “integrate all the stages of a crisis management situation: from the prediction, mitigation and preparedness, to the immediate response to events, and finally to capture feedback from the system to be used in future incidents”.

The result is a system that affords public officials more



**Control hub: the intelligent operations centre brings together some 30 state and municipal bodies in one “situation room”**

control over the city. IBM cites a case last year when a 20-storey office building collapsed in central Rio. The operations centre alerted fire and civil defence departments, worked with utility companies to shut down services near the building, halted the subway, diverted traffic and alerted local hospitals. It used Twitter, the social networking service, to alert citizens, while journalists based at the centre were kept up to date. The operators claim the centre has improved emergency response times by 30 per cent.

But analysts warn the centre is not a panacea for poor-quality public services. Indeed, public perceptions often run counter to official versions of events. Last year’s Rio+20 environmental summit was heavily criticised at the time for causing traffic chaos as VIP convoys took over main roads.

The papal visit also attracted criticism when the metro system broke down during rush hour.

The city is in desperate need of more services and, above all, new infrastructure. The city’s international airport, Galeão, for example, is impossible to reach quickly from the city centre during the evening rush hour traffic jams. The operations centre will

only help authorities milk more out of the existing infrastructure.

Marco Antonio Teixeira, professor in political science at FGV, a Brazilian think-tank, says without corresponding improvements in service delivery and the quality of infrastructure there will be a perception that the operations centre is more part of the marketing and security surrounding the World Cup and Olympics than a material change.

Centre officials, however, argue it has little involvement in public security – this is handled by the police – and that day-to-day operations are its bread and butter. Indeed, the less the public is aware of the centre, the

better it is doing its job, they say. Asked how many lives the centre has saved, Junqueira says it is impossible to measure. By seizing on small events and preventing them from degenerating into emergencies or

crises, the centre each day averts innumerable problems, he says.

Internationally, IBM is implementing this approach elsewhere. “This project has already inspired others: we have two other cases, one in Miami for an intelligent operations centre and another in Nice in France,” says IBM’s Dias. “We are talking to other interested cities too.” ■

The operations centre can only milk more out of existing infrastructure, not replace it



# Why wood works

Engineered timber is the fast, affordable and sustainable option for the construction of the cities of the future

**P**eople need housing and they want cars, in roughly equal amounts. Car design rests on the assumption that exponential increases in fossil-fuelled carbon production, pollution, spatial and social alienation and risk are acceptable if unfortunate by-products. Cars are super-modern because people want the product. Every successive model demonstrates development in new materials, better performance and supposed environmental responsibility. Innovation is greeted with critical acclaim.

Housing design, for example in the UK, is based on similarly flawed assumptions but is driven by a tightly regulated market that apparently admits no alternative to an outdated, poor-quality product. It is the site of reactionary design. Rather than the continuously evolving modernity of cars, the housing industry generally only builds what it has built and sold before.

Wood is the only carbon-hoarding construction method viable on a large scale

**Material gains: dRMM's proposal for organic urban growth, including floating mixed-use structures**

Cities all over the world, not just in the UK, have come to be characterised by the results. We can see the craft-based but near-

identical results everywhere. Brick or concrete boxes, mean room dimensions, small windows and a traditional external construction disguised internally by plasterboard and paint.

At every price level, each development is an agonisingly slow assembly of overpriced, ill-fitting components. In a car, to open a window or convertible roof, you simply press a button. In the modern British house, the window is a clumsy, double-glazed version of a medieval precedent. The tiled roof repeats the Roman concept of a brick house, without the underfloor heating or communal social spaces, of course.

The 18th century was defined by the peak of brickwork, the 19th century by the supremacy

of steel, and the 20th century by reinforced concrete. These current defaults of the construction industry produce too much carbon in manufacture to be serious contenders for the future.

So which material, and its consequent design approaches, will define the 21st century? Could that material, in its application and manufacture, improve global environmental issues, housing and life in cities?

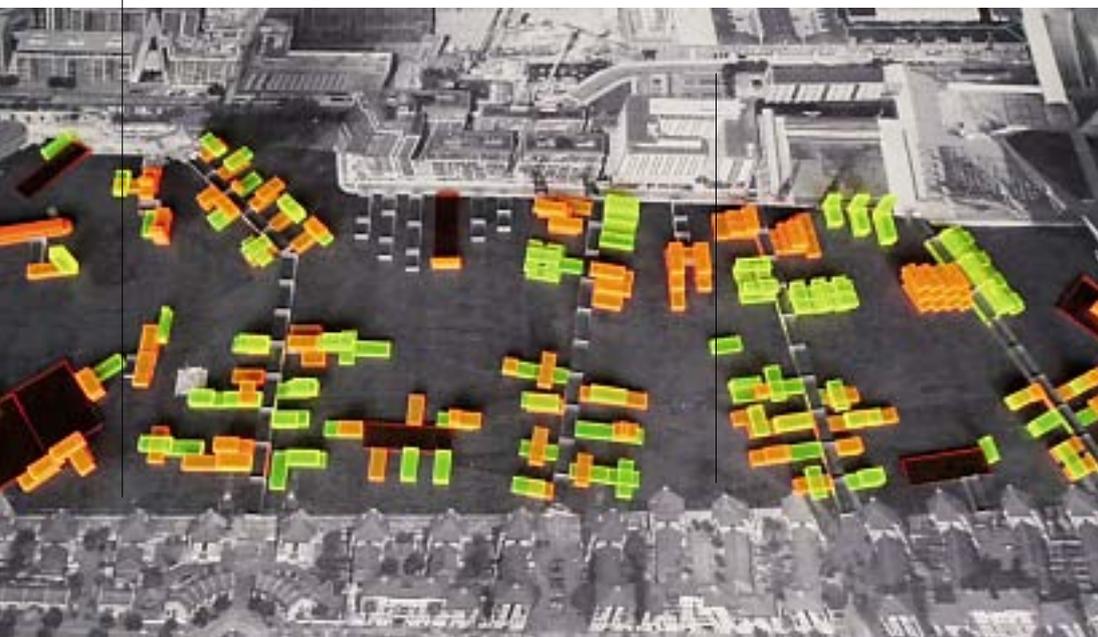
For me, the answer is engineered timber and, yes, it will define this century as the period where architecture could answer more questions than the preoccupation with form. Wood is the world's oldest and its most modern building material, the only carbon-hoarding construction method viable on a large scale.

Advances in engineered timber mean fast-growing trees could represent a large-scale, high-quality, prefabricated and sustainable future for construction.

Mass wood construction – not the familiar “timber frame” but panelised, laminated construction – can outperform concrete or steel in environmental, structural and even fire comparisons. And construction of such buildings can be fast enough to be economic. Crucially, managed forestry timber devours rather than creates carbon emissions.

But, perhaps most significantly for a desire-led housing market, especially in cities, people like to live with trees. It seems that wood, in its sensual and sophisticated properties, and its extended family of hybrid materials, offers hope for architecture to be a social prime mover – globally ambitious and locally popular. ■

*Professor Alex de Rijke is founding director of de Rijke Marsh Morgan architects and dean of architecture at the Royal College of Art*





## WHY A BANK SHOULD CARE ABOUT A GLASS OF WATER

Lima has one of the driest climates in South America. It's built on a coastal desert, making water very hard to come by. So Peru's water utility, Sedapal, came up with a plan: a construction project to channel a more reliable flow of water from the nearby Andes to the area's nine million inhabitants.

Citi worked with Sedapal to create a financing system for the project that makes it easier for Sedapal to pay contractors and monitor and track expenses. Now the construction of the channel is underway, with two treatment plants to follow.

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