Engaging Pilbara Cities Together

To increase prosperity and foster sustainable growth, leaders of Smarter Cities™ around the world seek to implement interconnected technologies to make their cities better places to live and work, and to drive innovation. The IBM® Innovation Discovery Workshop (IDW) is a highly engaging, dynamic and collaborative engagement held among city and regional stakeholders across community, academia, government and business. It helps cities and regions find, foster and focus its creative resources to drive strategic transformation.

The Pilbara is the engine room of the Australian economy. As an ‘energy’ region, it has been at the forefront of mining and resources for over 50 years, and it is from this strength that the region and its communities are forging a new future of economic diversity and digital futures. The Pilbara population currently stands at approximately 60,000 permanent residents (ABS Census 2011), with projected growth to over 72,000 by 2020 (Chamber of Minerals and Energy of Western Australia, 2012).

Despite its seeming isolation, the Pilbara could potentially become one of Australia’s fastest growing regions over the next 50–100 years. The Pilbara region is vast and comprises four local government authorities – the Shires of Ashburton, East Pilbara, Roebourne and the Town of Port Hedland.

To be an attractive place for people to live their lives in the towns, as well as enticing visitors to the unique environmental and industrial assets the region has to offer, the Pilbara needs to pin its future success on being a smart, connected region. A region that can support its growth across social, environmental and economic values and apply the smarter approach to help businesses, community groups, government stakeholders and residents capitalise on the effective use of emerging connective technologies (mobile phone applications, SMS services, open data and social networks) and create economic growth and societal progress.

By leveraging global trends and the acceleration of the digital world, IBM believes that the Pilbara Cities of Karratha and Port Hedland and the townships of Tom Price, Onslow and Newman can create an intelligent and interconnected region by applying innovation thinking, and invest in new technology and services to build a digital future for the region.

For the Smarter Pilbara Cities Innovation Workshop, the region focused on exploring opportunities to improve and create new business models across the key areas of:

1. Integrated energy, water and waste management: achieving resource efficiency by balancing supply and demand in light of emerging technologies and renewables; and
2. Economic diversity and digital futures for community and industry: the critical role that digital infrastructure and services will play in enhancing the lives of people living and working in Pilbara communities and the future of the Pilbara in a globally integrated economy.

Over 80 key stakeholders across government, community, industry, information and communications technology (ICT), and the culture and arts sectors gathered at the WA Government Innovation Centre in Bentley, Perth on 28 February 2013 and participated in collective brainstorming sessions to harness ideas for success in transforming the Pilbara to meet its economic, social and environmental aspirations.

IBM’s IDW methodology provided participants with a framework for thinking about how ICT can drive smart, connected and sustainable cities and drive new innovation projects in the Pilbara.

The event was officially opened by Mr Mike Hollett, Chairman of the Pilbara Development Commission (the Commission). Other guests included Dr Ken King, CEO of the Pilbara Development Commission, and Mr Chris Adams, CEO of the Shire of Roebourne.

Key Observations

A number of key observations were made through the group discussions and team exercises at the workshop.

- The Pilbara has the chance to leapfrog into the future by doing things differently to leverage new business models and the unique assets of the region, and ‘thinking big’.
- Significant gains can be made with embedding digitisation into the provisioning of new physical
infrastructure including buildings, roads, energy, water networks, community centres, hospitals and schools, and this will underpin the transformation to Smarter Pilbara Cities.

- Brand and identity is fundamental for any city and region, not least the Pilbara; The need to support ‘prouder’ cities flows into creating communities that are motivated and can implement change.

- Appropriate governance and collaboration models are needed to enable transformation across the public, private and community sectors.

- Economic diversity is critical to the future of the Pilbara. Increasing knowledge and services related industries is vital to increase vitality and workforce participation.

Finally, openness to understanding the impacts of global economic, social, demographic and environmental forces is fundamental to enabling the Pilbara to effectively compete in a globally connected world.

Capitalising on the Pilbara’s attributes and assets

There is an overwhelming recognition that there is a need to build a smarter Pilbara from current but under-valued physical assets (land, time zone, location, environmental, people and skills, current high levels of funding, and investment by the government and private sectors).

Specifically, the assets of the region that can be further leveraged for economic and social advantage include:

- Energy, including renewables for national and global markets – currently there are more new energy projects being planned for this region than any other in Australia. Renewable energy covering wind, solar, algae, geo-thermal, gas and renewable LNG presents a significant opportunity for the Pilbara and the nation.

- Water re-use and harvesting (including mine dewater surplus) – creating the opportunity to support food growth and new agribusiness. Agriculture and aquaculture ventures could open significant export opportunities and increase diversified job opportunities for the region.

- Global trading and transport hub – leveraging and repurposing existing port and logistics infrastructure and deploying innovative solutions for off-port and multi-use facilities;

- Rich history, arts and indigenous culture – the Pilbara has a thriving hub of state and local community-based art and cultural centres.

- Workforce – one of the Pilbara’s greatest assets is its educated workforce, both permanent and FIFO workers. There is strong evidence that if you provide people with the right training for required skills, it leads to employment in the region. The workshop also addressed the need to find models that suit a diverse workforce including indigenous, women, families and older workers.

- Unique environmental and industrial tourism places of interest – these are currently under-valued and require accommodation and transport networks to encourage visitors to visit and enjoy them.

Pilbara cities branding

Brand innovation is critical and will determine the way the Pilbara markets itself nationally and globally to attract new investment from alternative and complementary industries to the mining sector. While attributes of people and the region can readily be distinguished – for instance, there was a common view that people who live in the Pilbara are hardy, resilient and adventurous – it was acknowledged that the Pilbara struggles with defining its core values, given the diversity of its communities, as there is no single identity. Nonetheless, this is also one of its strengths – the diversity of the region and its strong interest among outsiders as a new frontier and a land of “endless opportunities and possibilities”.

In a globally integrated world, cities are becoming extremely competitive and benchmark themselves against worldwide livability and economic prosperity indexes. The image of the Pilbara is critical in attracting permanent residents. The Pilbara rates poorly in terms of its performance across the foundational areas of livable and thriving communities being healthcare, safety, education and transport, and it is these areas the Commission and its partners are
trying to address through economic diversification and the Royalties for Regions initiative.

“Broadening the business models going forward. Traditional business models will take us forward slowly, we need to utilise technology in order to drive new outcomes in the region. The most important thing for the Pilbara is diversification within an economy that is and will continue to be highly reliant on natural resource exports.

It’s about building the right mix, which includes the local community together with the opportunity to develop and operate globally. Some operations and development can be controlled remotely, but to diversify the economy we also need to build local communities in the Pilbara.”

Dr Ken King, Chief Executive Officer, Pilbara Development Commission

Coordinated vision for Pilbara cities

A general observation from the workshop is that most organisations that operate or affect the Pilbara and its cities, while well intentioned, are disjointed in their efforts and driven by their own internal KPIs as opposed to a broader agenda. Participants noted that in some cases projects had replicated previous endeavours without any synergy, and that opportunities and efforts had been curtailed by red tape, rather than engaging in solution-oriented dialogue.

Workshop participants noted that the Pilbara is at a tipping point in terms of its identity as a region. Preserving the status quo (or a version thereof) while important, is not sustainable and does not align with the vision for the future of Pilbara Cities.

Participants recognised that, as a region, Pilbara has to elevate onto a higher plane to host prosperous thriving cities with diversified communities and industries. While recognition of this fact was prominent through pre-workshop interviews and during breakout discussion at the workshop, many felt that there is endless ‘pass the parcel’ dialogue in one form or another, and from one committee to another, without any clear strategic alignment with local aspirations and broader state, national and global connection.

Clearly, people in the Pilbara are acutely tuned to the political and economic agendas and consequences for their region and want to have a say on their destiny. If their towns are to be cities of the future – the great northern cities of Australia – then they are entitled to have a seat at the table and expect that the outcomes will flow much sooner than the current reality.

The Western Australian Government’s vision is to grow Karratha and Port Hedland into cities with populations of 50, 000, supported by Newman as a sub-regional centre with a population of 15,000. This growth must be supported by ongoing economic activity and diversification, together with the provision of infrastructure, community services and affordable housing.

Thriving communities and livability

Pilbara cities are not known for their ability to support balanced and thriving communities. A lot of focus is currently on developing sustainable jobs and economic activity in the region which in turn raises the prospects, standard of living and prosperity of individuals and communities in the region overall. However, future work needs to focus on creating the right places, amenities and atmosphere for people to want to make Pilbara towns and communities their homes.

“It is the third place which is so essential. Not home, not work, but the third place. The place where people from different disciplines come to chat. Where people meet each other, and can have great conversations while being stimulated by the plethora of ideas from the people in that environment.”

Mr Allan Tranter, Director, Creating Communities

Significant effort is being put into building infrastructure and new community facilities for the long term. However, it is also critical that communal gathering places are encouraged, and this can only happen if the costs to provide cafes, restaurants, public places, museums, art centres and so on are dramatically reduced.

Some ideas for embracing the cultural and entertainment value of the community include encouraging stand-alone events, initiatives and investment in state of the art museums and art spaces that will be used by communities as ‘third place’ meeting and creative spaces as well as major tourist attractions.

Digital and physical connections

Communication is essential to building digital futures to support economic and social. A blend of broad-based communications infrastructure is required across fixed and wireless mesh networks, terrestrial and satellite, broadband, cloud offerings, remote managed services
and VoIP. These services need to be reliable, robust, affordable, accessible, and coupled with internet and mobile devices.

Furthermore, inter- and intra-regional transport is almost non-existent and needs to be part of any future land-use planning and provisioning for Pilbara cities, including affordable public transport options. This is critical in retaining youth as well as for citizens’ safety.

New business models

Shaping the future for the Pilbara will be largely about recognising how the FIFO business model – which is likely to continue for a large part of the next five to 10 years – can be leveraged. However, there has to be a shift from reliance on government and industry hand-outs in driving new prosperity and better service outcomes for citizens.

“Pilbara-based businesses need to be successful beyond mere subsistence and need to increase their scale of operation beyond the Pilbara region (unless they are directly related to mining, which does have reasonable scale already). Asia may have some business potential beyond that already occurring out of Pilbara towns.”

Mr Peter Johnson, Manager, Western Australian Local Government Association

In a globally competitive world, cities have to engage new business models across economic development, digitisation, social interactions, and environmental management. New growth opportunities must be evaluated by the value they deliver across economic, social and environmental outcomes. It is a question of how software and technology, in light of economic demographic change can support new enterprise. Some examples include:

- Cloud application frameworks – Technologies for deploying and running distributed apps in the cloud, and even supporting multi-continent spanning databases. As demand for applications and business processes grows, business leaders are drawn to frameworks that are designed to run their companies easily, cost effectively and quickly. Cities are also embracing cloud-based models. For example, municipalities that adopt a shared services model to reduce costs can offer repeatable and scalable service offerings.

- Big data platforms and integration in real time – Infrastructure to handle big data at high speed, and make sense of data that is currently being stored by government, private sector and community bodies. It is critical that the Pilbara seeks to unlock the power of the information it is generating and create greater connections and data access across its partners to enable more timely and strategic decisions to further its growth and competitiveness.

For example, in our discussions with healthcare leaders in the Pilbara one of the challenges that arose was the lack of research and information about outcomes-based healthcare delivery. Many services are provided with no information on the impact of the service on the community. Understanding at the point of care as well as linking this information to advanced healthcare analytics is critical in developing value-add services for communities that actually work. Other areas where greater collaboration can be achieved across different agencies includes information relating to energy, water, waste, work force, labour, transactions, transport interactions, demographic, social analytics and even weather and climate information.

Globalisation in knowledge services is happening across innovation and research, technology, production, trade, finance, communication and information. The result is the broadening of economies and a necessity for businesses to be connected to regions outside their own.

A smarter city recognises the shift over the past 30 years to a components business model in terms of economic development. Businesses seek to shift their various functions to regions and cities where access to land, labour and skills is maximised and capital and operating costs are minimised. Hence the global services delivery model that we see in India, Malaysia and the Philippines today.

Furthermore, the changing nature of work and the rise of mobility are shaping the future of cities and regions. The ability for cities to support service and knowledge workers 24/7 and in environments that are conducive to productive interactions is shaping the design and smart technology within homes, public places and workplaces. Smart, connected homes that provide building energy management, security and surveillance, healthcare monitoring (supported by private health insurers), interactive learning (managed by workplace training and accreditation suppliers) and entertainment are becoming part of housing developers’ offerings in new greenfield developments.
Technology as an enabler

Digital applications and information technology are already being leveraged by businesses in the natural resources industry to transform their operations and implement world-first operating models in the Pilbara. Technology for communities is essential and has the potential to:

- alleviate cost pressures across housing, food, education and transport
- provide new business opportunities and widen the Pilbara's economic and employment base
- improve the health, education, commerce and daily lives of citizens
- overcome remoteness, creating access to national and global marketplaces
- Enable integrated energy, water and waste management.

In summary, enabling the Pilbara with greater digital capabilities across community, industry and business will allow the region to better mitigate immediate issues and scale to meet projected growth demands. Smarter and more competitive cities are fundamentally based on a highly engaged community and more sustainable living.

Balanced economic development strategy

The region is totally dependent on the mining and resources sector. This model is not sustainable for the future. A balanced economic development policy seeks to understand the significant contribution that small to medium enterprises (SMEs), start-ups and self-employed knowledge workers of the digital economy provide in building the entrepreneurial capacity of the region. Planning for the needs of knowledge workers outside of those who reside in office towers is imperative, and creating greater virtual and physical linkages to education and skills development for this segment of the community is key.

Talent development

Within the broader economic development strategy of the Pilbara, there is a fundamental need to address skills and talent for the short and long term. This must be multi-faceted to cater for the needs of:

- larger enterprises in the knowledge services (health, education, ICT, financial services and energy) to attract knowledge workers
- emerging enterprises and SMEs that cater for high-speed growth, including mining and resources, transport and logistics, healthcare and professional services
- social business and enterprise ventures especially in regards to how the region supports seed funding for social business start-ups, social entrepreneurs and cooperatives including business model development and business risk mitigation strategies
- Local population skills development across learning and literacy and digital literacy for workforce participation in the knowledge economy.

Entrepreneurialism and business support

The way the region supports its entrepreneurial capacity and business support services is critical. Specific recommendations for the Commission, local government and its partners include:

- Engage in targeted entrepreneurship initiatives that seek to specifically address the changing needs of new business enterprise, including information support services, wireless access and data connection points, creative leasing arrangements of both public and private spaces and business mentoring services; and
- Investigate local and international investment and venture capital avenues, including public-private partnerships, to accelerate prosperity that is largely independent of government grant avenues. Trade delegations are an obvious way to create linkages across Asia, the US, Africa, the Middle East, South America and Europe.

In doing so, it is critical that Pilbara stakeholders work together on the multi-faceted branding and market image of the Pilbara. Consider the benefits the region can offer SMEs, including the ‘elevator pitch’ on the benefits of doing business in the Pilbara.

Partnerships and collaboration

Smarter cities work across and outside their traditional boundaries to openly collaborate with industry, academia, government and community for prosperity for all.

The Commission needs to have a clear understanding of where it will lead or invest and where it expects the private sector to be the catalyst for transformational projects. In addition, a clear understanding of the proposed business and partnership models is required.
in order for commercial, research and industry players to invest and/or engage in new ventures and initiatives.

The need for greater collaboration – outside of current mining sector engagement – as well as activating the community to generate new ventures themselves as opposed to local council-led initiatives was viewed as a high priority by workshop participants.

Given the tyranny of distance, physical connections urgently need to be supported by optimum paths for digital collaboration including virtual city, business and social networks.

**Stakeholder Engagement**

There are three levels of governance that leadership needs to connect across including local, national and international. Tapping into the right leadership at the local level is just as critical as managing the Pilbara from a national and international perspective.

Workshop participants suggested a coordinated office that seeks to coordinate the three tiers of government could be aligned under a regional plan, and that some kind of authority could be established with representation from industry, government and local constituents to propose bold ideas and major projects.

The Pilbara needs to be on the national agenda for any significant change in thinking about how to deal with the current challenges and make transformational change across the region.

The WA Government is committed to the importance of the Pilbara as the resource-rich economic powerhouse of the state and the nation. The Royalties for Regions initiative is recognition for the region in terms of building out the required infrastructure for communities. However, its ability to influence the future vision of the Pilbara is limited if the issue regarding housing affordability, lack of diverse enterprise and people’s willingness to stay in Pilbara cities is not addressed for the longer term.

**Economic and tax incentives for investment in the Pilbara – an objective assessment.**

There has been much discussion about the benefits of establishing a Special Economic Zone (SEZ) in the North of Australia. Pilbara cities, Northern QLD and Darwin have all staked a case for consideration. China embraced SEZ in the 1980s, 1990s and 2000s, and the numerous SEZs and industrial clusters that emerged after China’s reforms are strong contributors to China’s remarkable development. The debate around this issue has been maligned by the media and political parties without seeing it for what it could be. The discussion deserves objective consideration. Special circumstances call for special measures and an SEZ to reduce costs and increase required investments in the non-resources sector in the Pilbara should be evaluated. This was well highlighted in Regional Development Australia’s *Pilbara Report: Exploring Opportunities in the Nation’s Powerhouse, 2012.*

![Smarter Pilbara Cities Innovation Discovery Workshop](image)

### Ideas for Success

The workshop culminated in the awarding of three outstanding Ideas for Success from six group-voted proposals. These were pitched during the last workshop session, the *Dragons’ Den Judging Panel*, which included the esteemed panel of Dr Ken King, CEO, Pilbara Development Commission; Glenn Wightwick, Director, IBM Research; and Geoff Harben, Australian Information Industry Association (AIIA).

The judges awarded Gold, Silver and Bronze for the Ideas, based on transformational impact and priority.

a) **Gold – Farm to Fork.** A new industry to the Pilbara as an alternative to the current focus on mining. The idea is to take water from demining and from groundwater resources and use it for agricultural purposes, thus creating new industries and jobs, and to achieve environmental and ecological diversity and carbon sequestration. The industry would deploy new technology applications to offset diesel usage for power generation. Key advantages would be access to local and potentially global markets, addressing the current issue of getting fresh produce into Pilbara communities, providing local employment opportunities with a view to include native food varieties, new business enterprises, energy offset savings, and providing and supporting residential growth. It also creates a
vision of the Pilbara region becoming the food bowl for Asia.

b) Silver Brand Innovation. The Pilbara attracts the adventurer in us all. The Pilbara is not a city, it is not a region, it is a place of endless opportunities. The idea is a multi-faceted international marketing strategy, which will include international competitions to develop the Pilbara brand in an innovative way, to take the Pilbara out to the world through unique stories of global interest. This concept uses traditional and digital media to target audiences with competitions using online and social media for brand engagement, developing a world-class art gallery of the north with strong engagement with remote Indigenous communities and provide an online portal for Indigenous art for a global market. This idea deals with one of the major issues with the Pilbara – its brand and identity in a complex and globally competitive landscape. There is a need for the Commission to invest in soft infrastructure and the intangible assets of the Pilbara, namely, the image and value-creation aspects of its growth strategy.

c) Bronze – New investment model with a focus on energy renewables. The new investment model would sit outside the current resource-driven market. As an alternative growth model, it will seek to attract private investment and collaboration, as opposed to relying on current government and industry grant and funding strategies. The purpose is to create new renewable energy industries and promote innovation and research. The outcome would be access to new capital markets, as there is a large interest and demand for investment across new energy solutions. The benefits would be lower input costs (utilities, infrastructure and living costs), job creation and longer-term security for citizens in terms of building highly prosperous and environmentally sustainable communities.

Other ideas presented to the Dragons' Den were:

- **An innovation centre** – an entity that would be funded by both public and private sectors. The centre would solicit, receive and shape new ideas into actions and projects. It would assist with brand and capability issues and bring together highly skilled public and private partners to generate ideas for Pilbara. Key areas of interest would include agriculture, aquaculture, housing and education, and strong engagement with local people including in generating of local content and intellectual property.

- **An integrated waste, energy and water infrastructure model** for the community and business in the Pilbara. This model would adopt a collaborative approach for provisioning services to meet the high demand, security of supply, and support growth of the Pilbara Cities. This would be a first-of-its-kind project to build a risk-averse sustainable solution. Key benefits would include sharing of infrastructure, efficient use of capital, lowering costs, efficiency to end users and support for new industry development in the region. An integrated model across energy, water and waste is also critical to support permanent population growth in the region.

- **A Pilbara development bank** – A business entity to raise and manage funds as a national building concept for investment in key projects for building the Pilbara and ideas that improve infrastructure and services with a focus on outcomes. Investment will come from government, industry and community. The bank will bring funds together from disparate and uncoordinated sources such as crowd sourcing and tax breaks; encourages industry to keep banking on-shore; and is focused on providing a medium-term return to create a fiscally accountable entity independent of sectional interests.

- **A Pilbara online marketplace** – Pilbara business incubator and online marketplace linking products, producers and services together to generate new business economies within the Pilbara. The marketplace includes back-end support through professional services, accounting, HR and business planning. It provides a mechanism for pop-up retail and market days. The marketplace also provides small and micro businesses the infrastructure to offer goods and services and get their products to market, potentially reducing overheads in Pilbara that are restrictive to setting up a new business.

Some of the Big Hairy Audacious Ideas included:

- positioning the Pilbara as supporting US Defence activities in South-East Asia and the Indian Ocean, leveraging its geo-positioning and potential feasibility of off-shore port facilities

- offering direct flights to New York and London to support industrial and environmental tourism, including a five (or more) star hotel
• providing import facilities and linking this with high-speed rail to Perth and to Darwin.

The next steps for all these ideas is to pull together a list of interested stakeholders keen to further scope the ideas, and galvanise the appropriate resources to execute the projects.

Charting a course of action

Transformation occurs over time and ideas, as stand-alone concepts are not going to make the Pilbara a smarter and connected city. Achievable actions are required to harness the enthusiasm and participation of city stakeholders across business, industry, academia and research, community organisations and the people of the city.

The Pilbara can shape its future around being:

a) a global transport and logistics hub – seeking to support imports and multi-use facilities

b) A global trading and finance hub, using geographic location and time zones to its advantage across Asia, Africa, India and so on

c) the site of the world’s largest renewable farms for solar, wind, geo-thermal and renewable LNG

d) the world’s largest food bowl – reusing water from mining operations and advanced precision farming and hydroponic technologies

e) the most exciting industrial tourism destination in the world

f) a place recognised locally and globally for its rich indigenous cultural assets and traditions, and a place to go for unique entertainment value

g) truly harmonised community supported by modern future cities that are cyclone-proof and ‘climate-smart’

h) home to communities that are connected physically and digitally locally and globally, 24/7.

There is also significant opportunity to engage in smarter planning in infrastructure development, as well as deploying smarter weather and planning tools to deal with the effects of climate change, such as rising sea levels and more frequent cyclones.

Key Actions

We are recommending the following actions as the critical next steps to ensure the Smarter Pilbara Cities Innovation Workshop delivers on expected outcomes.

Action: Connected communities and smarter digital services for business

• Digital connection can only occur with robust and reliable telecommunications across the region including the deployment of free Wi-Fi networks in towns and leveraging access to networks currently deployed by the mining sector.

• By deploying a Smarter Pilbara through active citizenship and social inclusion, the city will drive more efficient and effective service delivery via access to information through use of latest technology and innovation (online and social government). Citizens and the greater community (local, national and global) could also be connected to “The Pilbara Spaces”, which would include both physical and virtual city collaboration and service delivery spaces.

Action: Drive innovation hubs for business and community (digital and physical service centres)

• In partnership with business chambers and the private sector, the city will deliver device-independent, personalised connection hub(s) and online social community networks, and leverage NBN digital hubs. As the NBN drives ubiquitous broadband across the nation, governments and businesses will further drive productivity, expand their customer bases and enable employment growth. Of particular focus are the areas of education, healthcare, online retailing, small business, digital media, creative industries and delivery of government services. Tele-working is also coming of age, given the shifts in work patterns in the knowledge economy. This presents enormous opportunities for the Pilbara to differentiate itself by providing facilities for the mobile workforce as well as for key Perth-based agencies. The not-for-profit sector is also leveraging online technologies to achieve a more integrated approach, particularly in the professional services sector (law, financial planning and housing), where online decision support systems are being deployed to help community workers connect with their clients in new ways, using social media and networks. Furthermore, providing community WiFi across communities will enable entrepreneurial and creative cities.
**Action: Drive Pilbara cities social collaboration 24/7**
- The virtual community would promote trading places for people, businesses and tourism, ranging from local produce and art, to swap meets. The Pilbara virtual city space will provide the ability to connect and share ideas, will allow people to connect via social media sites, and will be personalised to each person. Active participation by the Pilbara community will add value to the Pilbara virtual city space, and provide a site that is simple and personalised, and allows people to connect and share.

**Action: Smarter Infrastructure for energy, water and waste**
- Integrate water, energy and waste management across services authorities to optimise existing networks, and reduce energy, water and waste inefficiencies. This is a significant opportunity for the Pilbara to build its IP capability in building climate smart and resilient communities. It also enables new models of service delivery and enterprise as part of the economic diversification model.

**Action: Build a framework for cross-community connected healthcare and related research**
- Given the remoteness and FIFO business models operating in the Pilbara, it is imperative that the region adopts new approaches to healthcare. The promotion of medical services for remote communities and Indigenous healthcare is a major opportunity for the Pilbara region. The Pilbara could become a world leader in Indigenous healthcare service delivery models, with the establishment of centres of excellence across maternal and child health, chronic disease, ophthalmology; a national Indigenous healthcare service delivery model; and a connected healthcare platform using the new Port Hedland hospital as the hub, leveraging the work of building the brand of the Pilbara Healthcare services networks as a world-class care, teaching and research facility for connected healthcare models.

**Action: Instigate funding for centres of excellence in partnership with industry**
- Seek venture capital investment in new areas across agribusiness, aquaculture and food security, for local, regional and potentially global markets. Also look into environmental research; energy renewables; water optimisation and re-use; climate change and its impacts on housing and city design; extreme weather management for industry, transport and logistics, trading and finance; and smart connected healthcare.

**Conclusion**

The WA Government will invest a total of $26.4 billion in the State over the next four years, including $7.6 billion in 2012–13, to build and expand the State’s economic and social infrastructure. From an economic development perspective, the investment in the Mid-West Investment Plan, the Gascoyne Revitalisation Plan, the Kimberley Revitalisation Plan, the Ord Expansion, Super Towns and Pilbara Cities demonstrates the State is ready to take its legacy to a whole new level.

Hence, given this investment and WA Government commitment, it is our recommendation that the Commission seeks to highlight the benefits of digital services and technology that can support thriving and connected communities, to optimise physical and soft infrastructure, and deliver tangible social and economic outcomes to the people of the Pilbara.

An approach for formalising this into the planning and provisioning of new infrastructure for the Pilbara’s towns and communities would be to develop a framework for a Smarter Pilbara Cities Digital Infrastructure Roadmap. The plan would focus on how to deliver innovation as well as specific projects. It would also include:
- the governance model—who should lead projects
- prioritised social assets, economic diversity and digital futures projects for the next 12 months and the subsequent two- to five-year period
- Appropriate business engagement models for projects where the city’s involvement is limited in terms of funding and support
how to best galvanise partners and resources for projects

- enabling organisational structures, processes and metrics for key transformational innovation projects
- a review of existing Pilbara Cities plans, and areas where greater collaboration among stakeholders could occur, creating better connections, both physical and digital.

Furthermore, by leveraging data assets and information, the Pilbara stakeholders would also be able to realise other benefits, including decision-making processes based on benefits to communities, and contributions to productivity and growth. Outcomes-based delivery requires consistent measurement of the results of the investments, and can be reported as part of economic development and livability measurement, which encourages people and industries to invest in the Pilbara for the future.

IBM and its partners across the ICT, innovation and broader services industries sectors would be delighted to work with the Pilbara Development Commission on developing the digital roadmap. Areas that justify further investigation from a digital futures perspective include:

- digital communications and enablement
- integrated energy, water and waste management
- a cyclone prediction and modelling system for ports and communities
- brand innovation and collaboration, both regional and international
- social business and smarter commerce for business and communities
- healthcare and smart, connected homes
- smart work and virtual community models
- Indigenous inclusion, participation and preservation of cultural heritage.

The Roadmap could also be aligned to the Pilbara Digital Flagship Project initiative and could help find projects in partnership with ICT and industry sectors, to provision projects of local and state-wide significance.

Finally, in order to achieve the transformational change that is required to sustain thriving and prosperous communities, it is critical that Pilbara Cities is recognised as being of national significance, with the weight and support of leadership from across the most senior levels of government, industry and innovation sectors in Australia.

We are suggesting the Commission engages a new movement – a Smart Pilbara Consortium. The consortium would be led by the Commission and business leaders in the Pilbara, together with the WA Government, Federal Department of Innovation and Science, industry innovation leaders and NGOs – to openly collaborate on the digital and innovation vision and engagement models. For example, the Consortium could be responsible for engaging with international partners across the US, China, Japan, South America, Europe, Indonesia and Singapore to seek new means of investment and innovation. Key areas of collaboration include city, urban, housing and climate design; smarter infrastructure including energy, water, transport, broadband, connected healthcare, interactive education and lifelong learning and skills development; research and innovation including centres of excellence; and new industries including aquaculture and agribusiness, energy renewables, trade and finance.

IBM recommends:

- Pilbara stakeholders think big about the unique value proposition of the region. It has uncontested capability to produce energy, including renewables, to local and global markets, and to provide a foundation for broader economic diversity including supporting new industries such as agribusiness and aquaculture in a sustainable manner
- Pilbara stakeholders focus on the brand and image and build an ‘elevator pitch’ for the vision of the Pilbara, to attract investment
- PDC further investigate the Digital Cities initiatives and build a Digital Roadmap with clear steps for change, including the inclusion of ‘smarts’ into the infrastructure program of development across new buildings, energy, water and waste provisioning, including innovation clauses in procurement processes
- PDC works with Pilbara stakeholders to find demonstrator sites for smarter connected homes and communities to demonstrate integrated energy, water and waste, and to provide insights into the financial and business model for
supporting a new energy economy for the Pilbara towns and mining communities.

PDC leads an initiative with local stakeholders to deliver an engaging citizen intimacy model – one where social networks, e-government, economic development, entrepreneurship and a digital innovation hub are tangible outcomes.

In closing, we highly recommend that the Commission circulate a summary of these findings from the Smarter Pilbara Cities Workshop among its local constituents and the broader community and business stakeholders, both within WA and at a nationally.

We hope that a new model of collaboration across community, government, industry and the innovation sectors shapes a prosperous and digitally engaged future for the Pilbara.