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1. Executive summary

Introduction

Belfast was one of 31 cities selected to receive a Smarter Cities Challenge® grant in 2013 as part of IBM's citizenship efforts to build a Smarter Planet®. During three weeks in September, a team of six IBM experts worked to deliver recommendations on a key challenge identified by the political and executive leadership teams of Belfast City Council (BCC) and agreed with a range of stakeholders.

Address the need for a smarter and more effective approach to planning and decision making and provide a single view of activity based on multiple data sources from several agencies.

Belfast is fast becoming one of the most attractive cities in the UK and Ireland to live, work, study and invest in. The city sits at the heart of a growing population in the wider Belfast Metropolitan Area, encompassing Castlereagh, Lisburn, North Down, Newtownabbey and Carrickfergus, which has a population of 671,559.

The challenge

Belfast has been subject to a number of intervention programs initiated by many groups, agencies and sources with different priorities. However, despite these efforts and investments, the most disadvantaged areas of the city have remained consistently disadvantaged.

Belfast City leaders were looking for a way to capture and use information to make better decisions. Better decision making will allow more efficient and effective use of funding and resources as well as enable the scaling of good practices across communities.

The Smarter Cities Challenge team met with various representatives from statutory, private, community and volunteer groups as well as with educators and consultants who have conducted studies around the problems of segregation and deprivation in the area. This allowed the IBM team to gain an understanding of the complexity of the situation and the various initiatives planned or underway.

Although the groups for assessment were chosen based on health inequalities in the most deprived areas of East and West Belfast, the team's recommendations needed to be scalable in order to apply to other issues, such as education and unemployment, and to other areas of the city.

Findings and recommendations

The team has identified an innovative approach to creating a smarter community planning solution based on information collected to determine effectiveness, good practices and impact on overall wellbeing.

The team's 13 recommendations describe the requirements needed to identify data sources and define standard sets of data needed for comparative metrics, to build and test the operational and technical models and to deploy.

Prepare for solution implementation

Given the number of stakeholders and the need to leverage data from intervention programs, BCC must begin with a strong project management process in place. Establishing a method for regular communication with stakeholders will allow information sharing and stakeholder buy-in during the development and delivery process.

People: Create a collaborative planning environment

BCC must incorporate community-level input in order to create a fully representative planning environment. The development of this framework is a dependency for effective decisions based on the metrics that will be made available by the community planning solution. The execution model and rollout of this framework must incorporate the type of information and analysis that will be available via the community planning solution.

Process: Implement an evidence-based decision-making model

A lot of money is being invested into research on behalf of the various agencies working in specific geographical areas of Belfast, with little evidence of real change. An evidence-based decision-making model will enable a composite analysis of the information currently held.

This will create a collection of meaningful data to help determine the key priorities and most appropriate type of interventions required for specific geographical areas, and it will help agencies to measure the level of their success within those areas.

Technology: Management system for providing services and consolidating information

BCC needs a technical platform for data collection and augmentation of decision making. This will enable it to reach stakeholders with the information they need and provide them with the ability to share information. BCC should implement an IT solution that enables the evidence-based decision-making solution described above; take advantage of social technologies to enhance community reach; and use mobile technologies to collect, access and share information.

Conclusion

Despite historical social events and industry changes, Belfast continues to emanate a culture of pride, hospitality and potential. There is a real determination to create an environment in which all citizens have equal opportunities. The result of BCC's journey with the Smarter Cities Challenge revealed an urgent need for a solution to improve stakeholder interconnectivity and to enable metric-based collaborative decisions that consider program effectiveness as well as an individual's sense of empowerment and wellbeing. If successful, Belfast will enjoy resource and funding efficiencies, scale successful programs and expand the impact to one that effects social as well as physical regeneration, even for the most challenged segments of society.

Highlights

- There are a variety of initiatives focused on addressing deprivation in Belfast.
- Outcomes from these initiatives are not always measurable or known.
- Belfast City leaders wish to create a smarter way to use information to make better decisions.
- Collection of standard and useful data is needed to enable evidence-based decisions.
- Adapting and developing governance and management systems is required to support the project and execute the solution.

2. Introduction

A. The Smarter Cities Challenge

By 2050, cities will be home to more than two-thirds of the world's population. They already wield more economic power and have access to more advanced technological capabilities than ever before. Simultaneously, cities are struggling with a wide range of challenges and threats to sustainability in their core support and governance systems, including transport, water, energy, communications, healthcare and social services.

Meanwhile, trillions of digital devices, connected through the Internet, are producing a vast ocean of data. All of this information, from the flow of markets to the pulse of societies, can be turned into knowledge because we now have the computational power and advanced analytics to make sense of it. With this knowledge, cities could reduce costs, cut waste and improve efficiency, productivity and quality of life for their citizens. In the face of the mammoth challenges of economic crisis and increased demand for services, ample opportunities still exist for the development of innovative solutions.

In November 2008, IBM initiated a discussion on how the planet is becoming "smarter". By this it meant that intelligence is becoming infused into the systems and processes that make the world work — into things no one would recognise as computers: cars, appliances, roadways, power grids, clothes and even natural systems, such as agriculture and waterways. By creating more instrumented, interconnected and intelligent systems, citizens and policymakers can harvest new trends and insights from data, providing the basis for more informed decisions.

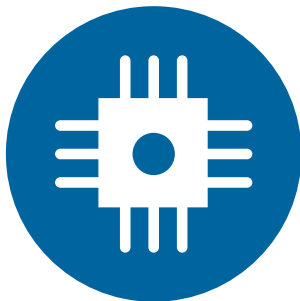
A Smarter City uses technology to transform its core systems and optimise finite resources. Since cities grapple on a daily basis with the interaction of water, transportation, energy, public safety and many other systems, IBM is committed to a vision of Smarter Cities® as a vital component of building a Smarter Planet. At the highest levels of maturity, a Smarter City is a knowledge-based system that provides real-time insights to stakeholders and enables decision makers to manage the city's subsystems proactively. Effective information management is at the heart of this capability, and integration and analytics are the key enablers.

Intelligence is being infused into the way the world works.

As IBM aligns its citizenship efforts with the goal of building a Smarter Planet, it realises that city leaders around the world face increasing economic and societal pressures. Given the increased demand for services, they have to deliver new solutions ever more rapidly.

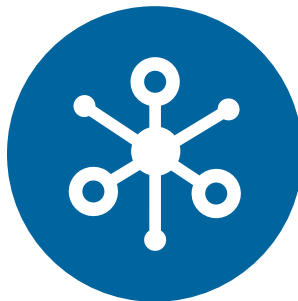
With this in mind, IBM Corporate Citizenship has launched the Smarter Cities Challenge to help 100 cities around the world over a three-year period become smarter through grants of IBM talent. The City of Belfast, Northern Ireland, was selected through a competitive process as one of 31 cities to be awarded a Smarter Cities Challenge grant in 2013.

During a three-week period in September of 2013, a team of six IBM experts worked in Belfast to deliver recommendations around key issues for Belfast City Council (BCC) Political and Executive Leadership team.



Instrumented

We can measure, sense and see the condition of practically everything.



Interconnected

People, systems and objects can communicate and interact with each other in entirely new ways.



Intelligent

We can analyze and derive insight from large and diverse sources of information to predict and respond better to change.

Figure 1: Instrumented, interconnected, intelligent

B. The challenge

The goal of the Belfast Smarter Cities Challenge was to create a roadmap to help BCC make the collective investment, intervention and programme selection decisions that will become necessary in 2015 when the council will have a new statutory duty of community planning.

BCC is currently leading a process of significant change, focusing its strategic direction on rebalancing and revitalizing the city and in preparing for significant legislative changes that it will be responsible for implementing as a result of a Review of Public Administration across Northern Ireland. The transfer of powers and responsibilities is scheduled to take place in the next two years. As part of local government reform, a number of changes are currently underway, as below:

- BCC has set up cross party Area Working Groups to advise and guide the development of local projects, facilitate community engagement and communication and consider area-based issues and recommend investment decisions. A model enabling the detailed analysis of data at this level will form an evidence base, allowing decisions to be taken in relation to targeted investment in area-specific needs.
- BCC is currently developing a corporate outcomes framework. This requires the identification of long-term goals for the City and joint planning with politicians and other agencies on what must be changed in order to achieve these goals. This is a new approach to service planning and therefore requires BCC and other agencies to have a clear understanding of the issues impacting the city and its communities. This new approach, in turn, requires a thorough and complete analysis of objective outcome data across all interventions.

The BCC Political and Executive Leadership team asked the Smarter Cities Challenge team to do the following:

Address the need for a smarter and more effective approach to planning and decision making and provide a single view of activity, based on multiple data sources from several agencies.

To narrow the scope of the challenge, BCC identified two focus areas of the city that are marked by extreme deprivation, opposing politico-ideological differences within close proximity, episodes of antisocial and intimidating behaviours among social groups, poor health and employment rates (relative to Belfast and Northern Ireland) and physical separation of neighbourhoods (for example, by peace walls or interfaces). The two areas are as below:

1. **West Belfast (including Whiterock, Upper Springfield and Highfield wards):** This area includes approximately 16,595 residents with a majority identified as having a Catholic-Nationalist community background with small pockets of Protestant-Loyalist residents. This area includes the single most deprived ward in Northern Ireland, Whiterock.
2. **East Belfast (including Ballymacarrett, The Mount and Woodstock wards):** This area includes approximately 23,158 residents with a majority identified as having a Protestant-Loyalist community background with a Catholic-Nationalist minority.

To further limit the scope of the challenge, it became clear that the focus of the challenge would be on the health disparity in the East and West study areas. There are stark inequalities in health in Belfast: the gap in life expectancy between the most and least deprived areas is 11.6 years. Community differences are also evident: life expectancy for a Protestant male is 77.6 years, while a Catholic male may expect to live to only 76.3 years.¹ In both the East and West study areas, life expectancy for both males and females is significantly below Northern Ireland means, and there are high rates of obesity, substance abuse, poor nutrition, mental illness and cardiovascular disease in poor, highly segregated communities compared with more affluent areas of the city. (Public Health Agency)

BCC chose to focus on health because health inequality is a well-documented, agreed and accepted area of need in the city. Healthcare is an emotionally and politically neutral universal need that humanises opposing factions of the community. Further, healthcare funding cuts across many different, government departments, and agencies of the public sector require a significant level of evidence-based collaboration.

Simply stated, given the seclusion of many current initiatives trying to address health inequalities across Belfast and considering the imminent shift in responsibility, Belfast City leaders were looking for a way to capture and use information to make better decisions. Better decision making would allow more efficient and effective use of funding and resources as well as enable scaling of good practices across communities.

If it is to make better decisions, BCC needs to capture and make available the correct data. Outcomes from data collected from the various initiatives must be evidence based in order to determine which initiatives are most effective. However, evidence-based outcomes from evaluated initiatives cannot be the sole measurement for achieving community objectives. The demonstration of improvement or achievement is not a simple cause and effect. The outcome of a particular initiative is one part of the equation for deciding on initiatives to pursue. Other parts of the equation are the indication of impact on individual influencers and the financial viability of delivering the outcomes. Therefore, any solution must provide the ability to evaluate the outcomes of individual initiatives along with their positive impact to a citizen's sense of control and wellbeing whilst bearing in mind the affordability of delivering it.

Additionally, there is a need to improve the awareness of initiatives and programmes that are available both for future initiative planning purposes and for use by the individuals they are in place to serve.

Lastly, a collaborative structure to enable decisions on funding, priorities and results will be essential for the continuation and successful scaling of initiatives deemed to be effective from the evidence and measurements analysis.

The Smarter Cities Challenge team used a modified grounded theory (GT) method. This inductive methodology takes a broad collection of data, collected through interviews and literature reviews, to identify the current state of processes, desired states, the gap between current and desired processes and steps to remediation (roadmap).

First, the team collected data during interviews with a broad range of public and private sector groups within Belfast. Interviewees included BCC, elected politicians, educators, police, university researcher-professors, business leaders and other stakeholders (see Appendix A). It reviewed numerous documents provided by BCC showing current City strategy, statistical findings and the economic, historic and social and cultural context for ongoing segregation and deprivation (see Appendix D). The team identified key themes across stakeholders and compared them to reports of a desired state for addressing health inequalities in East and West Belfast. Finally, it articulated the set of steps leading from current to desired state in a roadmap.

The team set out to answer the three guiding questions listed below:

- What is the current state of the City's health inequality strategy and outcome measurement for the two highly deprived areas of East and West Belfast?
- What does Belfast want to do to reduce the health inequalities in East and West Belfast?
- How does Belfast reduce citywide health inequalities through current initiatives?

In order to answer these questions, the team created three key deliverables, as below:

- A roadmap for creating a collaborative, comprehensive City strategy and measurement plan
- A model to support initiative identification, prioritisation and measurement
- A specific example that addresses health inequalities in East and West Belfast and demonstrates a new approach to public sector collaboration and outcome measurement

A critical determinant of the success of this challenge is that the proposed recommendations form a model that is not health services or region dependent. To be effective, the model must be practical when applied at a city level and above to address community planning and intervention needs as a whole.

This is a highly ambitious aspiration, but one the IBM team believes is achievable.

3. Context, findings and overview

The Smarter Cities Challenge team's context, findings and recommendations are based on a three-week process of meetings and workshops with a number of participants (see Appendix A), as well as research materials made available to the team.

The team primarily examined the case study areas as a manageable point of focus; what follows therefore is not intended to be exhaustive nor definitive. The findings reflect broader city issues, and the recommendations are intended to inform future city planning.

Belfast is the second largest city on the island of Ireland and the capital of Northern Ireland. The city area sits at the heart of a growing population in the wider Belfast Metropolitan Area, which also encompasses Castlereagh, Lisburn, North Down, Newtownabbey and Carrickfergus. The wider metropolitan area has a population of 671,559.

BCC is the largest of 26 district councils in Northern Ireland. It is the local democratic institution for the city, with 51 councillors elected in May 2011 who represent nine electoral areas and serve for a term of four years. Currently, political representation in BCC is shared between six political parties: two nationalist groups (Sinn Féin and The Social Democratic and Labour Party), three unionist groups (Democratic Unionist Party, Ulster Unionist Party and Progressive Unionist Party), and the Alliance Party.

Councillors elect the Lord Mayor, who serves a ceremonial function for one year. BCC is responsible for the citywide delivery of key services, including refuse collection and disposal, street cleaning, building control, environmental health, community development, indoor and outdoor leisure, parks and recreational facilities, tourism and local economic development.

Historically, Belfast became a major industrial and commercial centre through the late 19th century and was established as the capital of Northern Ireland when the region was established in 1921. There have been significant episodes of sectarian conflict between two opposing groups, often broadly characterised as the Catholic-Republican-Nationalist community and Protestant-Loyalist-Unionist community. The period 1969 – 1998 is referred to as The Troubles, in which bombings, assassinations and street violence became part of daily life in Belfast.

The 1998 Peace Agreement marked the official ceasefire in Northern Ireland, but many areas of Belfast continue to be highly segregated, especially working class neighbourhoods. Peace walls, flags, graffiti and murals mark political-ethnic-religious differences within neighbourhoods, and sporadic violence still occurs. Even today, West Belfast has a majority Catholic population (with some areas more than 90% Catholic) while a Protestant majority lives in East Belfast.

BCC arranged for the Smarter Cities Challenge team to meet with a number of stakeholders so that it would understand the issues from multiple viewpoints and take them into consideration when developing recommendations. This list of stakeholders and organisations interviewed is in Appendix A.

Many of the organisations and individuals listed are based in or deliver services in the focus areas of deprivation that exhibit health inequalities in East and West Belfast. During meetings, the team explored the multiple activities of, and gathered feedback from, each group. This feedback is included in this report to illustrate the diversity of organisations working in and the services being delivered in these study areas, as well as their view of the issues affecting the areas.

A. Context

Belfast City celebrated its 400th anniversary in 2013. It is increasingly recognised as a successful and vibrant city despite the legacy of The Troubles. Northern Ireland experienced economic growth until the recession in 2007 - 2008, during which its construction industry declined rapidly. It is not expected to recover back to 2008 levels of employment until 2025.¹

The UK employment rate is currently 71.2%, with Northern Ireland at 67.5%. It costs £23.2 billion to run the Northern Ireland economy. Crime statistics show that 2012 was the region's most peaceful year for 40 years, although there were five times more deaths from suicide than from road accidents, a statistic that increases in the group of males aged 30 - 45 years — men who were children at the height of The Troubles.

Belfast city grew around a manufacturing industry that built ships, spun linen and made ropes. At its height, the shipbuilding industry employed 80,000 people and the linen industry employed 31,000. The Protestant community was the dominant shipbuilding workforce and populated East Belfast. With the demise of this industry, many Protestant working class families in this part of the city are experiencing their third or fourth generation of unemployment.

Belfast therefore currently faces demographic, economic and political challenges. UK economic recovery is relatively slow at around one percent predicted for 2013 and maybe two percent for 2014.² Great Britain is Belfast's greatest external market, so recovery in Northern Ireland is beginning slowly, with the unemployment claimant count down for seven consecutive months (as of September 2013). The housing market has bottomed out, and structural weaknesses persist in the Northern Ireland economy. UK devolution and the UK's forthcoming welfare reform will increase pressure to reduce the fiscal transfer to Northern Ireland from the UK government.

Belfast today is almost entirely a services-based economy, with a heavy reliance on the public sector: 40% of all jobs in Belfast are in the public sector and only three percent in manufacturing.

Many citizens live in communities separated by physical barriers (interfaces or “peace walls”); the most deprived neighbourhoods in Belfast continue to be those located in and around these interface areas. Belfast contains the highest number of sectarian interface areas in Northern Ireland. There are 99 interface barriers in Belfast. Segregation remains high, and intercommunity tensions are reducing but continuing. Since the first ceasefires in 1994, ten barriers have been erected and another 12 heightened, lengthened or extended in Belfast. The barriers exist in all sections of the city but especially in North and West Belfast. The impact they have on relationships, labour markets, the inefficient use of services and facilities, significant urban blight and poverty are all characteristics of divided areas³. As some interviewees noted, community identity tends to be strong but can be oppressive.

Areas described as disadvantaged typically have higher than average rates of unemployment, physical and mental ill health and crime, lower levels of literacy, numeracy and educational attainment and a poor quality environment. The concentration of these problems into relatively small geographical areas has changed little over the past 50 years, and while there have been attempts to address these problems, particularly over the past 30 years, there has been little success in reducing the relative level of disadvantage.

Employment has a huge impact on social deprivation. Discussions with representatives from the business community suggested that, among others, IT and services were growth areas for Belfast. Northern Ireland is doing better than the rest of the UK at attracting foreign investment, but this is mainly for highly skilled jobs. And mobility is an issue: segregation means that some people are only willing to work in certain areas. Their reasons may include things such as their perception of safety and connectivity (public transport).

The digital sector is also considered a growth opportunity for Belfast. However, digital inclusion is an issue; a number of efforts are being made to enhance the city’s broadband infrastructure whilst supporting the capacities of communities to harness its potential.

Education and skills levels vary significantly across the city. While there has been an increase in the percentage of Belfast residents being educated to degree level or higher, a large proportion of the population has no formal skills. Generally, those living in the most segregated communities, where disadvantage is highest, are likely to have low skills levels and be unemployed, claiming welfare benefits.

Research undertaken by Oxford Economics in 2009 suggests that in the future, only one in seven jobs will require no or low skills. BCC recognises the need to up-skill the population to enable all residents to take advantage of the opportunities available in growth sectors. In addition, interviewees reported a need to connect the areas and opportunities of employment to deprived areas.

The retail sector declined in 2012 as consumer spends decreased, but tourism is one of the city’s biggest growth areas. Most businesses in Northern Ireland and Belfast tend to be small. While there are examples of social economy enterprises and support to encourage business startups and help businesses succeed, there tends to be a smaller number of business startups in Belfast than in the rest of the UK. The number of business closures in Belfast tends to exceed the number of startups.

Interviewees reported that the first two years of a business setting up determined whether it would survive or fail, and that entrepreneurship could be more actively encouraged at a younger age as it tends not to feature naturally “in the Northern Ireland culture”.

Belfast is the product of an exceptional combination of processes that have determined development in the city and affected the quality of life of its inhabitants. While there has been much progress in the city centre, it has been hindered by the global recession and there are still areas of deprivation that have not been able to benefit from the opportunities afforded by peace. Belfast has been subject to the consequences of rapid economic change, which have, for example, transformed its labor market and generated an endemic problem of unemployment. Finally, it has been the primary location of a sectarian conflict between communities. All of these give Belfast its specific character and its particular set of acute problems and challenges.

The diseconomies of segregation

Belfast has a population of 280,962 (2011 census), and the Northern Ireland Index of Multiple Deprivation (2010) states the following⁴:

- Belfast is the most deprived of the country's 26 local government districts.
- There are 582 wards in Northern Ireland, 51 of which are in Belfast.
- Belfast has seven of the 10 worst wards in the region in relation to health deprivation, and nine in relation to education, skills and training.
- Approximately 30,000 people in Belfast live in areas that are in Northern Ireland's top 10 most deprived wards in relation to income deprivation.
- Belfast has 150 Super Output Areas (SOAs)⁵ in total; 51 (34%) of these fall within the most deprived 10% of all SOAs in Northern Ireland.
- 5.4% of the city's population lives in 10% of the most deprived SOAs in Northern Ireland.

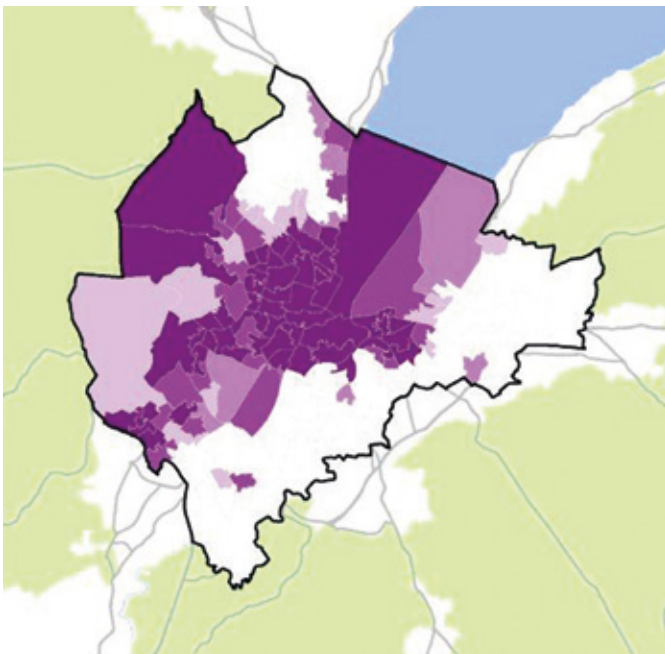


Figure 2: Northern Ireland Multiple Deprivation Measure map

There is evidence to suggest that some individuals forego employment opportunities and access to services, including social services, in areas that they perceive to be dominated by the “other” community.² This further isolates and marginalises communities in areas already seriously disadvantaged by underinvestment, poor levels of health, educational underachievement and environmental dereliction. Segregation remains an ongoing issue; Belfast still has more than 90 “peace lines” or “interfaces” within its neighbourhoods⁶. There is no doubt that the levels of deprivation are much worse than average in these areas and that segregation and community tension are contributing factors.

The “diseconomies of segregation” are borne disproportionately by these disadvantaged communities.

A number of the city's agencies hold demographic data about these areas in different formats, but there is no collective analysis of all their complex needs. Effective analysis of this data may enable Belfast city leaders to predict which interventions are more effective, leading to better decisions about services and resources and on what assets and facilities are needed to best provide these services in divided communities.

The Office of the First Minister and Deputy First Minister (OFM/DFM) commissioned a report, *Research into the financial cost of the Northern Ireland Divide*¹², in 2007. It covered all of Northern Ireland and compared services delivered by comparable countries and cities. The difference in the cost of service provision was estimated at £1.5 billion since the Good Friday Agreement in 1998.

Northern Ireland Multiple Deprivation Measure 2010 by Super Output Area

Multiple Deprivation Measure

- 51% least deprived
- 31 - 50%
- 21 - 30%
- 11 - 20%
- 10% most deprived

A history of disadvantage

While the study areas have many complex and interconnected issues of disadvantage and segregation, the Smarter Cities Challenge team focused on health inequalities. Therefore, commentary relates mainly to this issue.

Many citizens living in the most deprived areas of Belfast are on government benefits (in “the benefits trap”). The recession has had a big impact in these areas, contributing to a rise in mental health issues.

According to various representatives from community and voluntary groups working in the east Belfast focus area, many families live in poverty. One recurring claim was that the historical mindset in this area is to “expect a job” due to the manufacturing heritage in which sons would follow fathers into the shipyards and learn a trade. It was also claimed that some residents are unwilling to travel for work and lack aspiration.

According to feedback, initiatives in East Belfast tend to be short term and not sustainable.

The West Belfast community and voluntary sector expressed similar issues to its counterparts in East Belfast. Mental health issues are also prevalent, with suicide rates increasing. Similarly, heart disease and smoking are recognised as significant issues. Drug and alcohol misuse is on the increase. Prescription drug use for depression is increasing, as is the waiting list for cognitive behavioural therapy.

Youth workers deliver services to address the challenges experienced by young people living in areas of deprivation. There were claims of an increase in mental health issues such as self harm and suicide. There were also claims that sectarianism in these deprived communities leads to isolation, with residents feeling trapped in their communities, leading to increased misuse of drugs and alcohol. The unemployment rate is rising. These community groups help young people to develop their vocational skills for current employment opportunities and, in doing so, equip them with life skills.

Health outcomes and life inequalities have not sufficiently improved in the last 30 years in the focus areas, according to a local health professional.

In an interview, the Deputy Chief Medical Officer (DCMO) at Stormont (the seat of government) stated that the government’s future focus would be on early intervention with young children and supporting parenting.¹³

The Department of Health, Social Services and Public Safety tends to favor programmes or interventions based on published international outcome evidence (for example, the Canadian “Routes of Empathy” system). The Public Health Agency (PHA) would be the main delivery body for these interventions, which, in turn, may outsource to local community organisations. The DCMO emphasised the need to move to more common evaluation tools and the need for a mental health and wellbeing strategy.

Partnership working

The Belfast Health Trust, PHA and DSD commission services from local community organisations. Duplication in the delivery of services is an issue, as statutory agencies often work independently of each other and can be focused only on ensuring the delivery of the service they have commissioned.

Long-term interventions are challenging to implement in the current political environment. Politicians are elected for a period of three to four years and they want to make a difference, so quick wins are attractive to them.

A number of partnership structures and processes exist within the city, based either on a geographical basis or with a theme or outcome as a common focus — for example, community safety, health improvement or Integrating Services for Children and Young People (ISCYP).

BCC, the PHA and the Belfast Health Trust lead one such thematic partnership, the Belfast Strategic Partnership for Tackling Health Inequalities, in which more than 40 organisations work together under shared themes. It is supported by a collocated team, the Belfast Health Development Unit.

The PHA was formed in 2009 with the mission to empower the population to take control of its own health and wellbeing. Common health issues include coronary heart disease, smoking, alcoholism and drug misuse. The PHA, Belfast HSC Trust and BCC leaders declare that they have a commitment to address common health inequality issues by working collaboratively in the future.

The PHA funds approximately 700 community groups across Northern Ireland. In addressing deprivation, these three groups recognise the need for collaboration to reduce duplication of services and generate evidence-based outcomes, so they can finance interventions that deliver optimal outcomes.⁹

The Children and Young People's Strategic Partnership (CYPSP) is a cross-departmental organisation responsible for improving outcomes for children in Northern Ireland. Membership of the group is at the CEO level.

Currently these organisations operate independently, funding community groups to deliver services to citizens and leading to duplication. Their intent is to share budgets and agendas and demonstrate outcomes to justify interventions.

In the future, these agencies will work together to plan and agree on outcomes and build trust between agencies. Currently, there is no statutory requirement for agencies to work together, and agencies are not held to account for collective outcomes. It was mentioned during discussion with representatives of the CYPSP that there had been 25 years of interventions in Upper Springfield with no marked improvement in the deprivation index for that area. The CYPSP is now working on an outcome-based evaluation tool. The CYPSP Outcome Monitoring Report from 2011 contains much valuable demographic and indicator data but does not provide any causal relationship between the indicator and demographic data.^{10,11}

The Northern Ireland Council for Voluntary Action represents voluntary organisations and has more than 1,000 members. It operates independently but does have a relationship with government, with a third of its funding coming from government grants and the DSD. These voluntary organisations employ 28,000 people in Northern Ireland and provide a range of services. The most popular causes are children and health, with £700 - 800 million being spent per annum by the voluntary sector.

On a geographical basis there are a number of partnership structures, including Neighbourhood Renewal Partnerships. These are supported by the DSD under its Neighbourhood Renewal Programme for Northern Ireland to determine and coordinate renewal plans in the most deprived parts of the city.

The Neighbourhood Renewal Programme delivers physical, social and economic and community benefits. It addresses area-based deprivation and outsources services such as employability programmes, community development, early-years support and counselling services to local community organisations.

The Neighbourhood Renewal budget is allocated for projects and services in deprived areas. Currently, there are 12 identified Neighbourhood Renewal Areas in the Belfast City Council local government district.

There are also five Area Partnership Boards operating within Belfast, again funded by the DSD, as below:

- North Belfast Partnership
- South Belfast Partnership
- West Belfast Partnership
- East Belfast Partnership
- Greater Shankill Partnership

Area Partnership Boards deliver a variety of projects to the local community. They are made up of members from the public, private, community and voluntary sectors. For example, the Greater Shankill Partnership was formed in 1996 and has a board of directors comprising other smaller community groups, local councillors and private sector and statutory agencies.

Area Partnership Boards support delivery of projects and services on behalf of multiple statutory agencies. For example, the Greater Shankill Partnership created a Neighbourhood Action Plan focused on young people and families requiring multiple agency intervention – ISCYP. It has appointed a key worker to coordinate services from up to 10 different agencies to address the individual needs of troubled families. The initiative is funded by five government agencies and has produced a tracker system for families to demonstrate change and progress.⁷

There are a number of other social enterprise and community development organisations that support work in deprived communities. Those interviewed included Ashton Community Trust, a social enterprise in North Belfast that has existed for around 20 years, employs more than 120 people and delivers childcare services, among others, and the East Belfast Community Development Association.

Northern Ireland government priorities

The Northern Ireland government's priorities are laid out in the current Programme for Government (2011-2015), and include the following:

1. Growing a sustainable economy and investing in the future
2. Creating opportunities, tackling disadvantage and improving health and wellbeing
3. Protecting our people, environment and creating safer communities
4. Building a strong and shared community
5. Delivering high-quality and efficient public services

The team visited the OFM/DFM at Stormont where it met representatives of the government and civil servants. Their near-term priorities and programmes are as below:

- **The Delivering Social Change framework**, through which ministers will work together to tackle poverty and social exclusion. The framework seeks to coordinate key actions between government departments in order to deliver a sustained reduction in poverty and associated issues across all ages; improve children and young people's health, wellbeing and life opportunities; and break the long-term cycle of multigenerational problems.
- Seven signature projects have been announced so far (for example, Family Support Hubs), with a budget of £27.6 million. Many of the projects will require interagency collaboration. Government officials agree that common concerns are poverty and social exclusion. The department managing these projects said that working together would be a challenge. These seven projects aim to address multigenerational poverty via various interventions.
- **Together: Building a United Community**, a commitment to improving community relations and continuing the journey towards a more united and shared society. Objectives include removing all peace walls within 10 years, with a budget of £500 million. US envoy Dr. Richard Haass was in Belfast during the first week of the Smarter Cities Challenge, tasked with developing a plan to address the legacy of The Troubles, flags, parade, and all facets of sectarianism in three months. There is an urban regeneration programme to offer skills training to 10,000 youths.

- **Social Investment Fund (SIF)**, part of Delivering Social Change. £80 million is allocated for Northern Ireland, aimed at addressing deprivation and regeneration. The OFM/DFM will distribute funding to each of the nine SIF zones in Northern Ireland, four of which are in Belfast. This £80 million budget must be spent by 2016.

B. Findings

Based upon meetings and discussions with stakeholders, the team developed eight overarching findings alongside the more detailed observations described in the previous section.

1. Problems of deprivation and specific areas of concern are well known through data collection and intuition.
2. There has been an abundance of interventions and funding aimed at reducing deprivation, especially in the most segregated neighbourhoods.
3. Multiple sources suggest there are many short-term, individual interventions taking place with varying levels of success (often anecdotal or qualitative).
4. Measurement strategy focuses on independent individual and city variables, instead of causal relationships among variables and outcomes.
5. Many uncoordinated initiatives, agencies and government departments are addressing similar (or the same) issues independently based on individual, agency and political needs.
6. Funding support for interventions is often short term and does not address lasting social change.
7. Accountability is based on allocation of resources rather than desired outcomes.
8. Belfast lacks an agreed long-term strategy (mission, vision, values, priorities) that drives measurable initiatives and outcomes.

C. Overview of recommendations

It became clear to the Smarter Cities Challenge team that its recommendations could be split into three categories and project phases. To move to an evidence-based decision-making model and deliver the infrastructure required for each project or change requires preparation from people, process and technology perspectives. The team’s recommendations are laid out under these headings.

However, they must be seen in the context of the new governance systems and change management processes being introduced as part of local government reform and in the context of the mechanisms being introduced for community planning and delivery of transferred functions such as regeneration. This is broader than the remit of the Smarter Cities Challenge; the people recommendations will need to be integrated into this broader process.

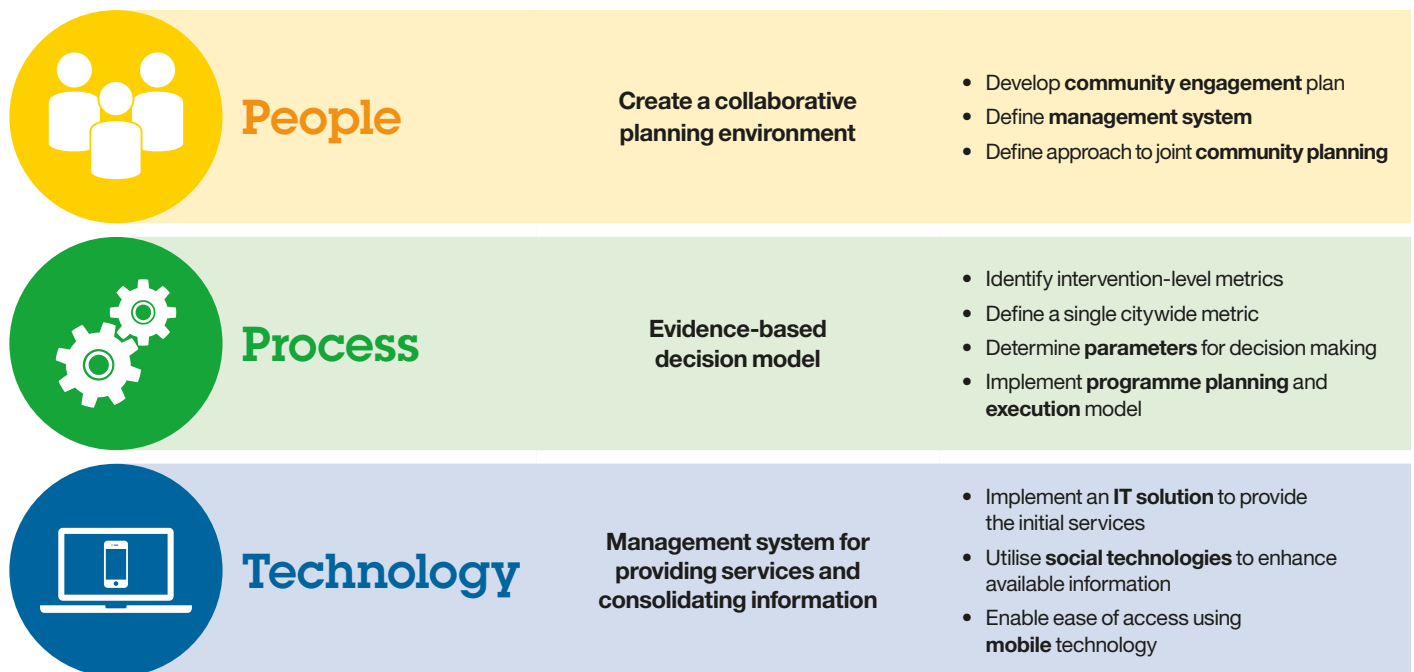


Figure 3: Categories for recommendations

People recommendations are related to the overall development of the community planning framework, strategy and structure. It is vital that these are in place to facilitate the delivery of process and technology recommendations.

Process recommendations cover the development of both an evidence-based decision-making model and the surrounding intervention planning process as follows:

- An evidence-based decision-making model enables BCC to determine the success of a programme and to actively compare its performance across multiple indicators of success by prescribing information that must be captured before, during and after an intervention. It can analyse this data statistically to answer such questions as: “Which programme(s) is the most successful in order to deliver an intervention to address issue X?” or when looking ahead to plan a new intervention for which indicators can be inferred from the available information.
- The intervention planning process prescribes how to use both the evidence-based decision-making model and the database of intervention, people, outcomes, funding and performance information in order to ensure that decisions the City makes are well justified, consistent and clearly benefit the long-term success of the City’s initiatives

Technology recommendations provide the IT platforms required to support prior recommendations and to ensure BCC utilises modern technologies, such as social and mobile technologies, in order to broaden the reach of the solution, especially to younger generations.

People: Create a collaborative planning environment

Much of this phase has been recognised as critical by the City leaders and is already clearly understood. For this reason the majority of this report focuses upon recommendation categories two and three.

The three key recommendations in this category are as follows:

a. Develop community engagement plan

In order for such a wide-ranging project to succeed and deliver the benefits the city requires, clear (and agreed) sponsorship, management, leadership, structure and ownership will be required. This is true at all levels, from councillors to the executive management of BCC to delivery, including external participants of the new community planning process. This includes council bodies, statutory bodies and community groups, including local, volunteer, charity and church groups.

With such a wide ranging and potentially competitive set of stakeholders, BCC will need to clearly take the lead and create buy-in to the new process and systems. Without this, the approach to measurement and evidence-based decision making is unlikely to be successful.

The shift in community planning responsibility offers a key opportunity for both BCC and the statutory bodies to be seen working together, and with the community, to address the needs of citizens.

b. Define management system

With such a diverse set of stakeholders, BCC will need to be very clear on what it requires of each group of stakeholders, including when and how they participate in the process, what roles they undertake and what benefits they (and BCC) will receive for doing so. At the same time, BCC must ensure that the community is highly involved and buys into the benefits it will receive.

The outcome from this recommendation should be clearly defined roles and responsibilities, under which all parties understand, and have bought into, the part they have to play in the process.

c. Define approach to joint community planning

Once the stakeholders, and their roles and responsibilities, are defined, the processes that define how they will operate, when and how groups will interact and the overall decision-making process outline will need to be defined.

It is important that all parties understand this model, and when detailing the funding and engagement model, BCC will need to include clauses that cover the mandatory inclusion and use of the evidence requirements that support the overall decision-making process.

Additionally, in this phase, BCC should determine the initial focus areas it wishes to improve; the team recommends a focus on areas that initially bring together the various local and statutory groups.

A good example of such a focus area is obesity; this brings together agencies with a common interest in physical activity. For example this could include leisure and parks (BCC), physical space (BCC), wellbeing (DSD) and health (PHA). This visible commitment at the outset will set the scene for a future planning vision that is highly collaborative and extremely effective.

A roadmap of intervention types should be created to provide initial guidance on the order for implementing the evidence-based decision-making model.

Process: Define an evidence-based decision-making model

This is the critical output from this project. Broadly speaking, the implementation of an evidence-based decision-making model is formed of two components.

First, we need to determine the measurements that will indicate success. The team proposes the creation of two groups of new metrics: one to determine the success of similar groups of interventions and one common outcome measure that will apply to any intervention. These may be combined with other data (such as value for money) to make decisions on interventions, including (but not limited to) whether they should be scaled, provisionally funded or discontinued.

Second, BCC needs to implement a robust and consistent approach to making decisions and to enabling the capture of any outcome metrics. It is imperative to the success of this model that these results (or assessments) are captured prior to the commencement of, during (when relevant) and at the end of an intervention to enable objective decision making.

Together the metrics and process make up the proposed evidence-based decision-making capability.

This category includes five recommendations, as follows:

a. Identify intervention-level success metrics

Each group of related interventions, such as those targeting obesity, alcohol or drug addiction, require a common set of success indicators. These success metrics will enable similar interventions to be compared and assessed on an equivalent basis. This recommendation is critical to enable BCC leaders to answer such questions as: "Which of our drug addiction interventions has been the most successful?"

b. Define a single citywide metric

BCC must define a common metric, which will be measured across all interventions regardless of type. The team has identified a composite, subjective-perceptual measure of locus of control and wellbeing (LOC/WB) as the recommended common metric. All programmes should capture this metric as a way of evaluating the quality of the intervention against outcomes of other related or unrelated initiatives (such as drug/alcohol programmes, park development or nutrition programmes). In turn, this metric could be used at the City level to determine, quantitatively, the largest contributors to overall city LOC/WB. Accordingly, BCC will be able to answer questions such as: "Which intervention most benefits the city's wellbeing?"

c. Determine parameters for decision making

Other data that can be captured during the execution of an individual intervention will provide further input into determining programme or intervention success. Key in the current climate of reducing budgets and fiscal tightening would be calculating the value for money a programme delivers. In effect, it would be meaningless to look only at the individual success of a programme with regard to how well it delivers benefit either compared to its peers of the same intervention type or with regard to the city's LOC/WB, if the City cannot afford to run an intervention or to scale it.

d. Weight decision-making parameters

In order to bring these three success metrics together, a fourth metric should be calculated that takes into account the relative priority of the intervention success metric, the citywide LOC/WB metric and value for money. This weighting factor will be based on the relative prioritisation of the three key outcome metrics when developing an overall decision-making score.

e. Implement programme planning and execution model

Once the preceding three recommendations are implemented, BCC must tie them into a robust and repeatable process that clearly identifies how the success metrics and other relevant data will be used to enforce good decision making. BCC must also mandate intervention providers to capture data that is valid, reliable and robust.

Technology: Management system for providing services and consolidating information

The third category considers the underlying IT solution that will enable both the collaborative intervention and evidence-based decision-making recommendations. With a large amount of data being captured and used in many different ways during the decision-making and execution process, a consistent and accessible data solution will be mandatory.

The team recommends that BCC leverage portal and other new technologies in order to ensure that all users — both service providers and communities (citizens) — feel a sense of inclusiveness in the new process. These technologies will enable easy collaboration, information sharing and ease of access to relevant interventions, helping citizens who have traditionally struggled to understand what services are available to them. This is a typical problem with systems that either do not detail available services or just provide a long list of possibilities, with little or no help to the average user in determining the best course of action to help them with their issues.

BCC should avoid this problem by investing in a solution that “signposts” services based upon needs. For example, a user may be asked: “Are you looking for assistance with drug addiction?” and “What drugs do you currently use?” in order to help them locate services, rather than being presented with a long static list that they do not understand.

The recommendations in this category are as follows:

a. Implement an IT solution to support the new services

The primary IT solution will contain such features as a database to house all the data, analytics to enable BCC to utilise the data effectively in its provision and delivery of services and funding and an externally facing portal to enable access to data by communities and providers.

b. Utilise social technologies to enhance available information

Key to the success of these recommendations will be information and knowledge sharing, both from the council to citizens and incoming from citizens to the council. Technology is now trending towards the use of social networks rather than the traditional PC and browser-based interactions, particularly for younger generations. BCC should use networks, such as Facebook and Twitter, to both disseminate and gain information, together with digital billboards and Bluetooth to push information.

c. Enable ease of access using mobile technology

While many individuals may not have access to traditional PC and wired Internet connections, very few do not have access to internet enabled mobile devices, such as tablets and Smartphones. For this reason, enabling these recommended services to be delivered via mobile-responsive technologies will significantly extend their reach. Further, mobile-connected individuals will likely be more participative and able to contribute due to their being “always connected”.

4. Recommendations

Prepare for solution implementation

Belfast City Council (BCC) will need to take a number of actions to prepare for and carry out the development and delivery of a community planning solution, as listed below:

- Further explore the community planning solution and solidify plans to move forward.
 - This includes taking the recommendation detail offered in this report and refining the approach for development and rollout of the solution
 - The Smarter Cities Challenge team recommends a pilot to enable quicker implementation in an area that is well defined and small in scale
- Engage skilled resources to enable organisational change management.
 - In order to create an environment that can operate with objectivity, it may be helpful to engage third-party experts to facilitate an evaluation and make recommendations to accomplish this (see Recommendation 1)
 - Develop a data architecture that incorporates change versions
 - Confirm or gain stakeholder agreement
- Establish a project management structure for planning and managing the solution project.
- Prepare the operational infrastructure.
 - Collect the inventory of interventions and available data
 - Identify the data architecture that is needed to support the process
 - Understand the accessibility, bandwidth and breadth of broadband services needed to support the solution
 - Establish the forum for decision making (see Recommendation 1)
 - Establish the standard metrics to be collected (see Recommendation 2)
- Implement a pilot.
 - A pilot would serve as a good way to validate the solution, refine the metrics and the analysis process and solidify stakeholder buy-in
 - A recommended scope for a pilot is to focus on one geographic area and issue (such as West Belfast with a focus on obesity)

With respect to the identification of the data architecture needed to support the process, the IBM team recommends that BCC consider the following:

- Big data requires a data architecture that takes into account the appropriate data sources and establishes a framework for storage, interoperability of systems, accessibility and real-time data analysis. That is, the data architecture should provide a set of standards for process execution.
- The data architecture should support dynamic data requirements, as the specific data that is required for analysis and measurement will evolve over time.

The team tasked with implementing this solution must understand the accessibility, bandwidth and breadth of broadband services required to support the solution. In order to ensure adequate services for communities, universities, businesses and so on, the IBM team recommends an assessment of the technical environment in Belfast.

BCC should also consider applying the technical solution in a wider remit — not only for BCC planning but in the context of the local government reform programme and hence in the broader Northern Ireland context.

Recommendation 0a: Establish a project management structure to support the development and delivery of a community planning model

Scope and expected outcomes

Scope

BCC should implement a project management structure to provide governance and stakeholder engagement during the solution planning and implementation process. This should encompass the delivery of this project, from strategy and planning to operations and execution.

The project management structure should include the following:

- Executive Steering Committee
- Project Steering Committee
- Others as identified to ensure successful project design and implementation

For example, an Executive Steering Committee could be made up of nominated members of the BCC management team, councillors, community leaders, executives from partner statutory agencies and relevant government departments.

A Project Steering Committee would be more hands-on, managing the planning and rollout of the solution and meeting with relevant stakeholders weekly or as needed.

Essentially, BCC should put a flat structure in place for managing the plans and rollout of the solution. Each group would interact with a hierarchical stakeholder structure to share status and gain agreement of direction and progress.

The steps below will help BCC to develop and implement the project management structure.

Stakeholder management:

- Identify resources dedicated to ongoing stakeholder management
- Sponsor a regular (for example, biweekly) “open mic” cadence call for any interested community leaders to get an update on the project

Resources for analysis and decision making:

- Set up resources for reviewing recommendations on measures to be tracked
- Establish the process, rules and forum for making decisions amongst the project team
- Determine stakeholder representatives to participate in reviewing the results
- Gain support from intervention providers for data collection and measurement

Developing the inventory:

- Interventions
- Existing intervention-related data

Establishing data requirements (see Recommendation 2)

- Collect from existing interventions
- Identify new standard data required
- Create analysis questions to be used in the standard data collection
- Identify data management process

Enabling data collection (see Recommendation 3)

- Define form and mechanism for intervention data collection
 - Define data model to store and manage collected data
 - Test approach to data collection in the pilot described above
-

Scope and expected outcomes (continued)

Expected outcomes

- Ability to progress solution development and rollout
- Increased ability to secure buy-in
- Quicker implementation and proof of concept via a pilot
- Templates for scaling implementation to the broader community, including the following:
 - Refinement of data requirements and analysis questions
 - Refinement of process resulting in derived metrics
 - Process for performing data analysis
 - Refinement of data collection mechanism
 - Connectivity evaluation for broader rollout

Cost of inaction

- Loss of drive and momentum
- Slower implementation of a data analysis solution
- Continued ineffective resource and funding decisions
- Continued duplication of services
- Continued procrastination on intervention decisions
- Organisations continue to operate in silos
- Lack of buy-in to solution

| Proposed owner and stakeholders | Suggested resources needed |
|--|---|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers • BCC • Statutory agencies • Government departments | <ul style="list-style-type: none"> • Funding • Project management • Statisticians • Technical resources • Hardware, software • Consultants, business analysts <p>Cost estimate: Medium</p> |
| Dependencies | Key milestones, activities and timeframe |
| Decision to move forward with the solution | <p>Short term</p> <ul style="list-style-type: none"> • Identify partner agencies and organisations • Establish project structure • Engage stakeholders <p>Mid term</p> <ul style="list-style-type: none"> • Develop solution for pilot • Implement pilot • Scale for broader rollout <p>Long term</p> <ul style="list-style-type: none"> • Execute citywide rollout |
| Priority | |
| High | |

Recommendation 0b: Define a data architecture

Scope and expected outcomes

Scope

BCC should define a data architecture to ensure consistency of data storage, interoperability across systems, methods of access, authority and real-time data analysis

The data architecture should take into account the variety of data sources available and establish a framework for storage, interoperability, accessibility and real-time data analysis. For instance, if common data structures are used to store and access data, then applications can easily share information. The data architecture should attempt to provide a set of standards for systems as a vision (or model) of eventual interactions.

The management of large quantities of structured and unstructured data is a primary function of information systems. A data architecture describes structured data for storage in data management systems, such as relational databases, but typically does not describe unstructured data, such as word processing documents, email messages, pictures, digital audio and video. As structured and unstructured data are both important sources of information, BCC should address the gathering, processing and storing of this information for later usage.

In addition, the significant growth of data is now driving the need for real-time analysis to determine what data is relevant while it is in flight (or on the network) on a more dynamic basis in order to reduce what is being stored.

BCC should take data governance into account as part of the data architecture. BCC should define the types of data that will exist, how they will be used and who will use them. This should include (at a minimum) input from IT, data security and data governance personnel.

BCC should take the steps below.

Rollout preparation:

- Identify data management expertise for consultation
- Anticipate documenting data (for example, type, security level, users participating)
- Determine stakeholder representatives to participate in reviewing the results

Evaluating the inventory:

- Collect data from existing interventions
- Identify new standard data required
- Identify data management process

Enabling data collection (see Recommendation 3):

- Define form and mechanism of intervention data collection for planning purposes
- Identify other relevant forms of data collection that may also require planning

Expected outcomes

The development of a data architecture that is extensible to accommodate future changes.

Cost of inaction

The significant growth of data will cause the management and mining of information to be more difficult over time.

| Proposed owner and stakeholders | Suggested resources needed |
|---------------------------------|--|
| BCC | Technical resources Cost estimate: Low |
| Dependencies | Key milestones, activities and timeframe |
| Data privacy requirements | Short term <ul style="list-style-type: none"> • Define roles, responsibilities and timeline • Gain agreement and funding • Develop architecture • Test against current data available Mid term <ul style="list-style-type: none"> • Implement architecture |
| Priority | |
| Medium | |

Recommendation 0c: Perform an assessment of citywide connectivity

Scope and expected outcomes

Scope

Belfast has made a significant investment in network connectivity (for example, optical fiber), however, “last leg” connectivity (meaning to the home or business) is often the most difficult to achieve. Recent advancements in mobile technology help to address this concern, but some areas may still lack coverage.

In order to ensure adequate services for communities, universities, businesses and so on, BCC should conduct an assessment to determine the accessibility, bandwidth and breadth of connectivity across the city.

Rollout preparation should include the following:

- Define the physical area of interest
- Determine desired areas for wired access
- Determine desired areas for mobile coverage
- Determine stakeholder representatives to participate in reviewing the results

BCC should develop a plan for providing appropriate coverage for the following:

- Wired access, such as for business and education
- Mobile access, including signal strength

Expected outcome

- Development of a connectivity coverage map(s) for the city
- Development of a roadmap to address gaps

Cost of inaction

There will be inconsistency in coverage and services across the city.

| Proposed owner and stakeholders | Suggested resources needed |
|---------------------------------|---|
| BCC | Technical resources Cost estimate: Low |
| Dependencies | Key milestones, activities and timeframe |
| Funding for resources | Short term <ul style="list-style-type: none"> • Perform assessment • Identify gaps Mid term <ul style="list-style-type: none"> • Develop a roadmap to address gaps • Begin execution of roadmap |
| Priority | |
| Medium | |

People: Create a collaborative planning environment

The report IBM Organisational Change Management Centre of Excellence: Better Change for IBM Core Tools Training⁸ describes six basic steps to be taken in any project that will have significant impact on the way stakeholders will behave. The steps are as below:

1. Clearly describe the change vision and goals, including key messages to be used across stakeholder groups
2. Actively involve City leaders in owning the change
3. Assess the impact of the change and plan how it will be managed
4. Engage and prepare stakeholders to adopt the new way of working together
5. Align the community planning group to enable and reinforce desired behaviours
6. Monitor adoption of the change to ensure desired outcomes are realised

BCC must address a number of questions when developing a plan to engage the community in the new approach to planning, as follows:

1. What is the reason for change?
2. How will the change be managed?
3. What groups have a vested interest in the change?
4. How will adoption of the change be measured?
5. Are leaders committed to the change?
6. How are people and the organisation impacted by the change?
7. Is the organisation prepared to absorb the change?
8. How will the key messages be communicated?
9. Are leaders modeling the desired behaviours?
10. How will resistance be avoided or mitigated?
11. How will people be prepared with skills and knowledge to operate in the new environment?
12. Is the organisation ready to execute the change?
13. Are leaders holding people accountable for working in the new way?
14. How will people be incentivised to sustain the change?
15. What continuing actions are needed to sustain the change and realise the expected vision?

Recommendation 1a: Develop the community engagement plan

Scope and expected outcomes

Scope

Securing the commitment of community leaders at every level is critical to successful community planning. This recommendation provides the roadmap for engaging these stakeholders.

There are many stakeholders across Belfast who have a vested interest in any changes associated with the approach to community planning. Some will feel threatened; others will welcome the opportunity that change brings. The success of the shift to interagency community planning led by BCC will depend, in large part, on the willingness of these stakeholders to accept the change. Managing this successfully will require singular focus.

BCC should work with change management experts to develop a plan to engage stakeholders in community planning efforts. It should also organise a dedicated team to focus on change management and stakeholder engagement. Specific steps should include a stakeholder analysis to do the following:

- Determine what people or groups have a vested interest in the change
- Identify and prioritise people or groups who may influence the success of community planning efforts and assess their current and desired level of support
- Assess the extent to which they will be impacted by the change
- Assess the individual's or group's readiness to absorb the change
- Define specific actions to engage people and build their support
- Identify actions to prevent non-supporters from derailing the project
- Develop a stakeholder support matrix as a useful way of showing stakeholder positions. "Active challenger[s]" pose the greatest risk to the change (see Figure 4)

Note: Because stakeholder data is highly confidential, this should be performed by someone with good judgment and discretion. Helpful skills for individuals leading this effort include knowledge of key influencers and who is impacted, access to individuals who understand stakeholder positions and the ability to interview stakeholders to gather input on stakeholder viewpoints. This individual should have the respect and trust of key City leaders. Legislation will determine involvement with other groups as part of the community planning process.

Expected outcomes

- Increased buy-in from stakeholders across the city
- Clear definition of the stakeholders and their level of support

Cost of inaction

Lack of buy-in to approach, recommendations and outcomes for interventions designed to address issues associated with persistent deprivation. This will perpetuate sectarian division and reinforce community focus on short-term issues rather than engaging stakeholders in developing a common Belfast vision around which all can rally.

| Proposed owner and stakeholders | Suggested resources needed |
|---|---|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers • Statutory agencies • Government departments | <ul style="list-style-type: none"> • Change management experts • Two or three resources from BCC • Access to stakeholders <p>Cost estimate: Low</p> |

| Dependencies | Key milestones, activities and timeframe |
|--|--|
| <ul style="list-style-type: none"> • Clear and visible leadership from City leaders • All stakeholders feeling they are included in some way | <p>Short term</p> <ul style="list-style-type: none"> • Identify change management experts and resources • Include inventory stakeholders • Complete stakeholder analysis <p>Mid term</p> <ul style="list-style-type: none"> • Define actions to secure stakeholder engagement and buy-in • Execute actions <p>Long term</p> <ul style="list-style-type: none"> • Monitor stakeholder commitment to plan |

Priority

High

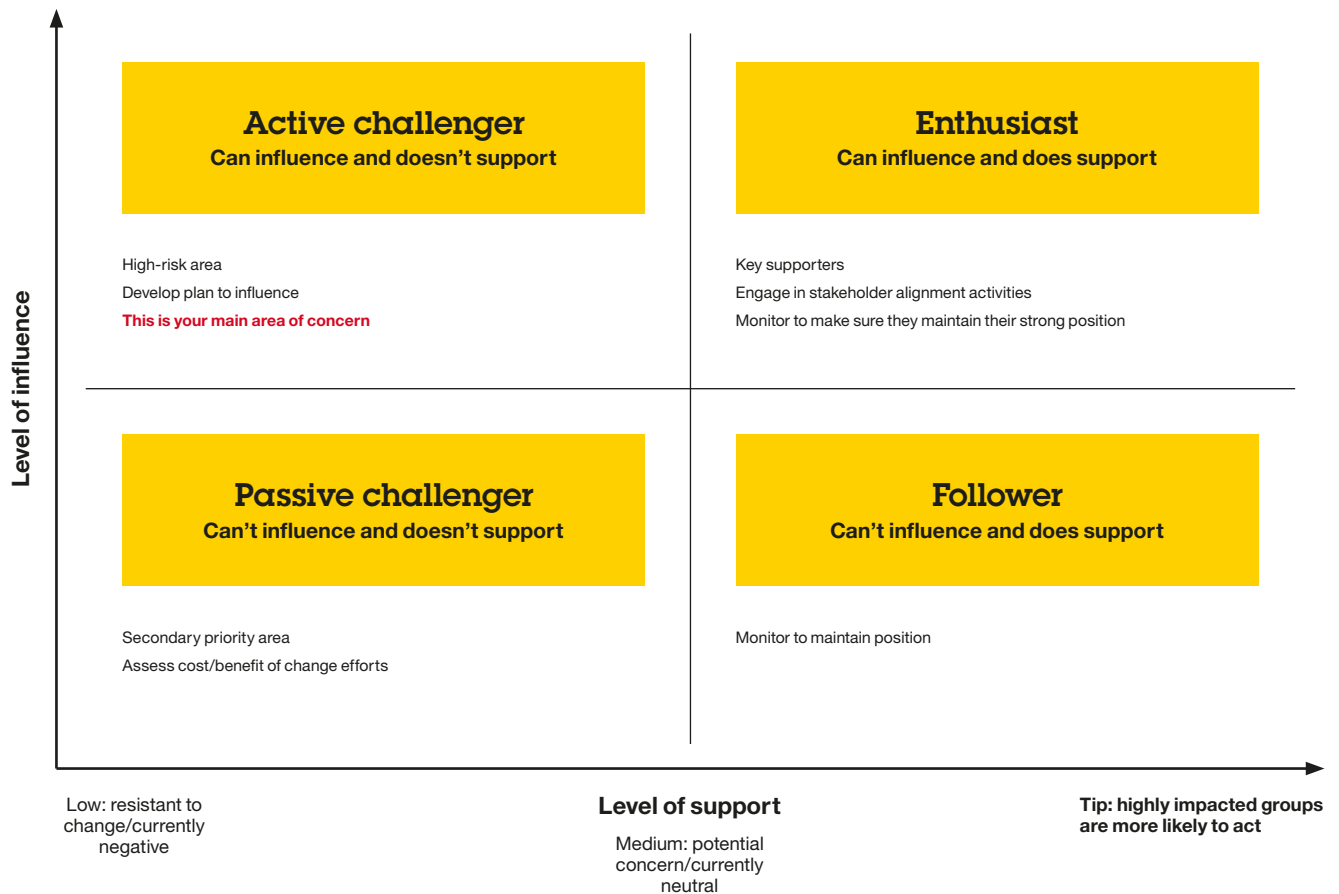


Figure 4: Stakeholder support matrix

Recommendation 1b: Define the management system

Scope and expected outcomes

Scope

BCC should clearly define the way in which it, the voluntary sector, statutory agencies and the private sector will collaborate to develop a joint community plan. BCC should define the participants of the group (called a “Community Planning Group” for purposes of these recommendations) that will be responsible for planning and the structure in which they will operate.

BCC should utilise a tiered structure for the operating model, including, for example, the following:

- Executive Steering Committee
- Management Team
- Working Team(s)
- Citizen input

For example, an Executive Steering Committee made up of nominated members of the BCC management team, councillors, community leaders, executives from partner statutory agencies. It would be consulted on major decisions and would provide final sign off. The DOE will issue legislation to guide who should be consulted as part of the community planning process.

The Management Team would lead the development of the community plan. It would be more hands-on, working with members of the Working Teams to coordinate cross-team planning. The Management Team would comprise members of the BCC management team and representatives from other organisations as appropriate.

The Working Teams would be aligned to major functional areas for which BCC has responsibility (for example, community safety, health services, parks and leisure). They would comprise representation from the organisations providing services in each of these areas in addition to representatives from BCC. Working Teams would own primary responsibility for securing input from communities.

BCC should leverage social media and digital advertising to promote the community plan to citizens and request input, for example, in the following areas:

- YouTube videos
- Facebook page
- Online social community with two-way communication to increase social engagement (leverage recommended community hub [Recommendation 3])

To better engage community groups and citizens, BCC should appoint champions from elected council members to be the public face of joint community planning.

BCC should use a Responsible, Accountable, Consulted, and Informed (RACI) chart (see Figure 5) to identify who will be responsible, accountable, consulted on or informed about community planning decisions. RACI charts are a simple way to clarify roles and responsibilities, making sure nothing falls through the cracks. RACI charts also eliminate duplicate efforts and confusion by assigning clear ownership for each task¹⁴.

Expected outcomes

- Clear organisation and accountability for community planning
- More efficient planning process

Cost of inaction

- Lack of clarity on roles and responsibilities
 - Duplication of effort
-

| Proposed owner and stakeholders | Suggested resources needed |
|---|--|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers • Citizens | <ul style="list-style-type: none"> • Funding • Technical resources • Hardware and software <p>Cost estimate: Low</p> |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> • Implementation of community planning tool • Stakeholder buy-in to the value of participating | <p>Short term</p> <ul style="list-style-type: none"> • Gain agreement on the structure • Define roles, responsibilities and timeline, including completion of RACI chart • Identify participants at an organisational level • Plan approach for citizen input <p>Mid term</p> <ul style="list-style-type: none"> • Identify participants at an individual level • Communicate, educate • Create social sites for citizen input <p>Long term</p> <ul style="list-style-type: none"> • Begin planning |
| Priority | |
| High | |

RACI chart (Roles and responsibilities matrix)

For instructions/training material visit <http://www.racichart.org>

Process name/description:

Created on: Revision:

Created by:

| Tasks | Facilities Mgr | Plant Mgr | HR | Security | Project Mgr |
|---|----------------|-----------|----|----------|-------------|
| Identify a minimum of three asphalt contractors from Angie's list | C | - | - | - | R |
| Arrange for contractor visits and quotes | I | - | - | - | R |
| Review quotes and references, make contractor selection | A | I | I | - | R |
| Review and finalise contract, lock in plant shutdown week | I | I | - | - | R |
| Communicate project to shutdown maintenance crew, make sure all vehicles are removed from the lot | I | I | R | I | I |
| Provide security gate access codes for asphalt crew by June 15 | I | - | A | R | I |
| Oversee the project during the plant shutdown week, ensure it is completed on time | A | I | I | - | R |

R = Responsible, A = Accountable, C = Consulted, I = Informed

Figure 5: RACI chart example

Recommendation 1c: Define the approach to joint community planning

Scope and expected outcomes

Scope

BCC should leverage the programme planning and execution model to agree funding priorities at a macro level (see Recommendation 2d). For each strategic priority identified by the Community Planning Group, the following should be assessed:

- Who is accountable, who will lead?
- What are we trying to achieve?
- Who should be involved?
- Are there opportunities to collaborate with other organisations trying to address the same priorities?
- Who will provide funding?
- Who will be affected?
- When will we begin work?
- Has previous work been done in this area? If yes, what was the level of effectiveness? What was the impact on city wellbeing?

This level of planning should be led by the Management Team described in Recommendation 1b.

Many of the community organisations currently providing services lack the experience, capability and tools that will be required to participate in the future procurement process. For this reason, BCC should host workshops to provide clear expectations, guidance and direction. This process will be aided significantly by a digital tool to support community planning — a place to propose strategic priorities, share information, exchange ideas, address the questions above and make decisions. This will aid the tracking of decisions, ideas that have been put on hold and rationale for decisions.

Expected outcomes

- A clear and repeatable method that will provide a level playing field for all participants
- A consistent approach to evaluation of all priorities
- A transparent process that builds trust amongst stakeholders and citizens

Cost of inaction

- Lack of trust in the community planning process
- Decisions made based on inconsistent foundations

| Proposed owner and stakeholders | Suggested resources needed |
|--|--|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers | <ul style="list-style-type: none"> • Process map • Tool to support community planning <p>Cost estimate: Low</p> |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> • Implementation of tool to support community planning • Buy-in from stakeholders | <p>Short term</p> <ul style="list-style-type: none"> • Gain agreement to approach • Define roles, responsibilities and timeline • Engage stakeholders <p>Mid term</p> <ul style="list-style-type: none"> • Communicate and educate • Plan rollout of tool to support community planning <p>Long term</p> <ul style="list-style-type: none"> • Roll out tool to support community planning |

Priority

High

Process: Define an evidence-based decision-making model

There are two key components to implementing these business recommendations:

1. Implement the **metrics** and **parameters** that need to be captured in order to provide **evidence**
2. Define the **programme planning** and **implementation process** that uses this data to provide a structure for delivering an evidence-based decision-making and programme implementation model

Metrics and parameters

The first stage of implementing this involves the development of a set of metrics that will become the evidence basis for making intervention decisions, as below.

1. A set of standardised programme success metrics

These metrics will be used to assess the quality of similar interventions and will vary depending upon the intervention target. A success metric can be a frequency count of participants' successful completion of a programme or a rating or other numeric data that demonstrates how effectively an intervention caused an intended change for participants. For example, smoking cessation programmes may use the number of cigarettes smoked daily as a common programme success metric. Alcohol programmes may use the number of daily drinks or alcohol units. Nutrition programmes may focus on calories from healthy food. Common success metrics may not be available for all similar interventions, but when they can be standardised it will provide an important basis of comparison.

2. A standard citywide metric

This is a single measure that will be collected, at minimum, before and after an intervention and also at regular intervals throughout long-term interventions. It is the single basis of comparison across all programmes, regardless of type.

BCC should consider measuring a positively focused, subjective and perceptual composite measure of LOC/WB as the standard metric. Community leaders, agencies and other interviewees made significant, universal requests during this project for a positively focused measure that will show whether a given intervention truly makes a difference in the lives of individuals in their communities. The Smarter Cities Challenge team took requirements for the standard metric from existing data available in Belfast, research literature in social and health psychology and public policy, limitations of various statistical methods and Belfast City strategy. However, in combination with all these requirements, the key requirement for the standard metric is that it is simple and practical to implement.

LOC has been studied for more than 60 years in health and social psychology and has recently been applied as a key indicator of economic performance. LOC is a cognitive variable that has been shown through thousands of research studies to underlie virtually every health problem. Further, LOC is particularly important in situations of cultural or social unrest, as is the case in Belfast. By measuring a subjective-perceptual variable like LOC, BCC will have the quantitative basis for making comparisons across programmes addressing any significant behavioural issue, including mental health, stress, heart disease, adolescent suicide and depression.

BCC should select items from an established scale of LOC, such as the Multidimensional Health Locus of Control Scale (MHLC)^{15,16}. The MHLC scale has a research base consisting of hundreds of studies and is the best-known tool of its type in health psychology. For the purposes of demonstration, the Smarter Cities Challenge team selected five items from the MHLC scale for use in the standard metric, each of which is measured on a seven-point scale (1 = strongly disagree, 7 = strongly agree).

LOC 1: I am in control of my health.

LOC 2: If I take care of myself, I can avoid illness.

LOC 3: Most things that affect my health happen by accident (reverse-scored).

LOC 4: If it's meant to be, I will stay healthy (reverse-scored).

LOC 5: I can only do what my doctor tells me to do (reverse-scored).

Alternatively, if BCC requires a more generalised measure, it may adapt items from one of many other scales, such as the Locus of Control Scale (Rotter, 1989).

In addition to LOC, BCC should measure wellbeing as part of the standard metric. Although wellbeing is a newer measure in psychology, it also has a well established research base and is typically measured with a single item:

WB 1: On the whole, I am very satisfied with the life I lead.

These six items on a seven-point quantitative rating scale will comprise a short Standard Locus of Control and Wellbeing (LOC/WB) scale that may be used as the standard metric with every intervention type throughout Belfast. The Smarter Cities Challenge team recommends that these two subjective-perceptual variables be combined into a single quantitative composite score for ease of analyses. In addition, because the selected items include specific subscales, the composite score may be broken down into subscale scores for more detailed evaluation of interventions. The team also recommends ongoing psychometric evaluation of LOC/WB to ensure its validity, reliability and sensitivity over time.

The Smarter Cities Challenge team provided BCC with a short training workshop on statistical issues related to measurement and analyses of the LOC/WB standard metric, as well as a bibliography of articles, with the articles themselves in PDF form, and a paper summarizing the initial measurement scale above (including the rationale for its development and instructions for scoring).

3. Value for money

Perhaps the most familiar metric and already being measured as a public sector requirement, this can be refined further to ensure the value identified is measured using the scales previously described. BCC should implement a common metric of cost per participant as a standard indicator of value for money for each intervention. To increase the value of this metric, value for money should be combined with programme success and LOC/WB results to provide an overall metric that takes into account the value of success.

BCC should evaluate these three metrics through appropriate descriptive and inferential statistical analysis. The team recommends analyses that answer such questions as:

- “What is the mean LOC/WB for all programmes in East Belfast or West Belfast?”
- “Which programmes have the lowest LOC/WB in the city?”
- “Which programmes should or should not be funded?”
- “What variables account for differences in the LOC and wellbeing score?”
- “What variables best predict the LOC and wellbeing score?”

Figure 6 summarises the three levels of data analyses, key measures and responsible parties in the evidence-based outcome measurement model.

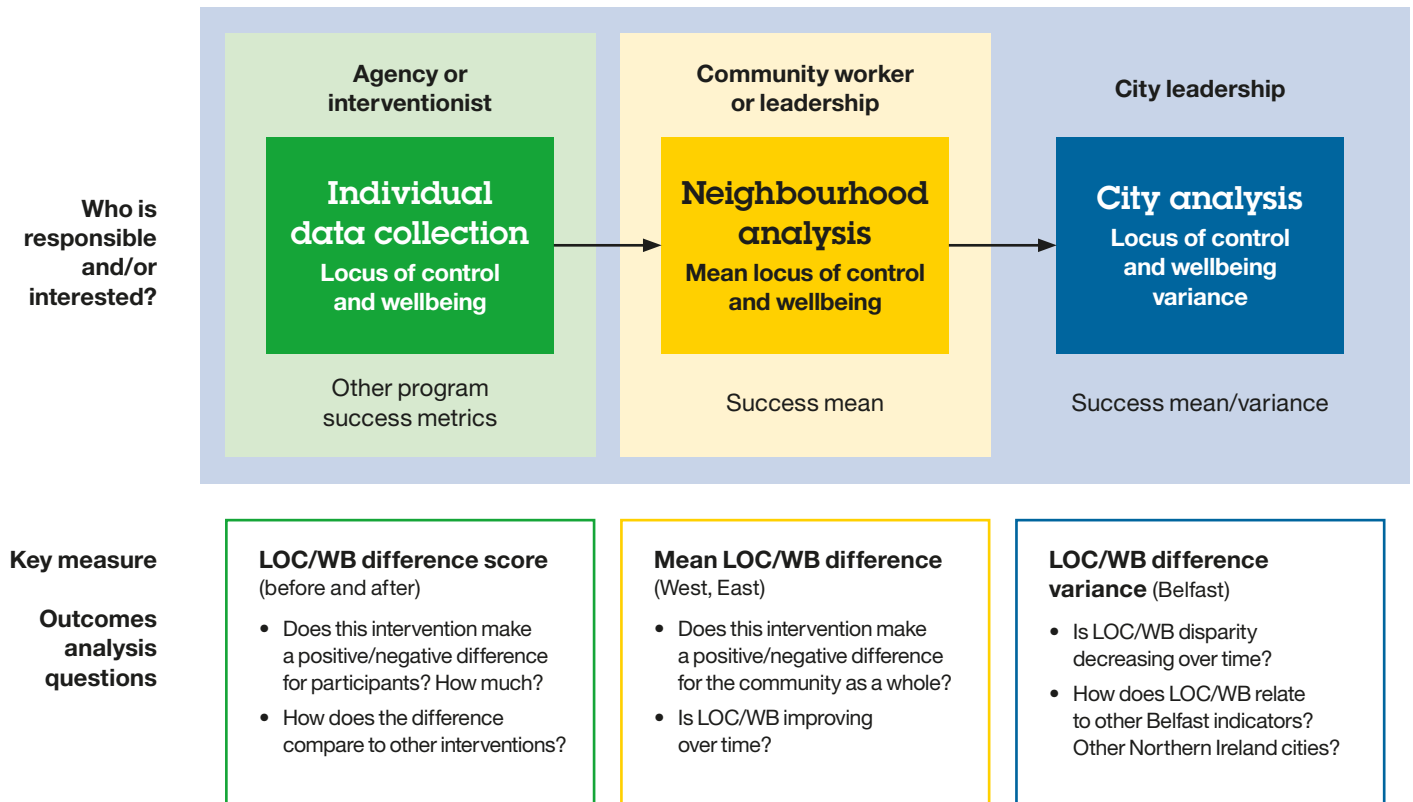


Figure 6: Data analysis key measures

Programme planning and implementation process

When considering the process that needs to be adopted in order to provide a repeatable, consistent and evidence-based decision-making approach, BCC should adopt eight steps. Each step adds a layer of information to the decision-making process and ensures that no component is missed out. The recommended interactions with data are described below.

Prescribing this model will help BCC to meet its objectives and will provide a clearly stated decision-making structure that can be shared and hence will be seen as open and fair to all stakeholders. While this will not remove political barriers to ensuring money is spent only where it is most needed, it will at least provide a clear and open basis for the decisions, which should in turn enable fair debate.

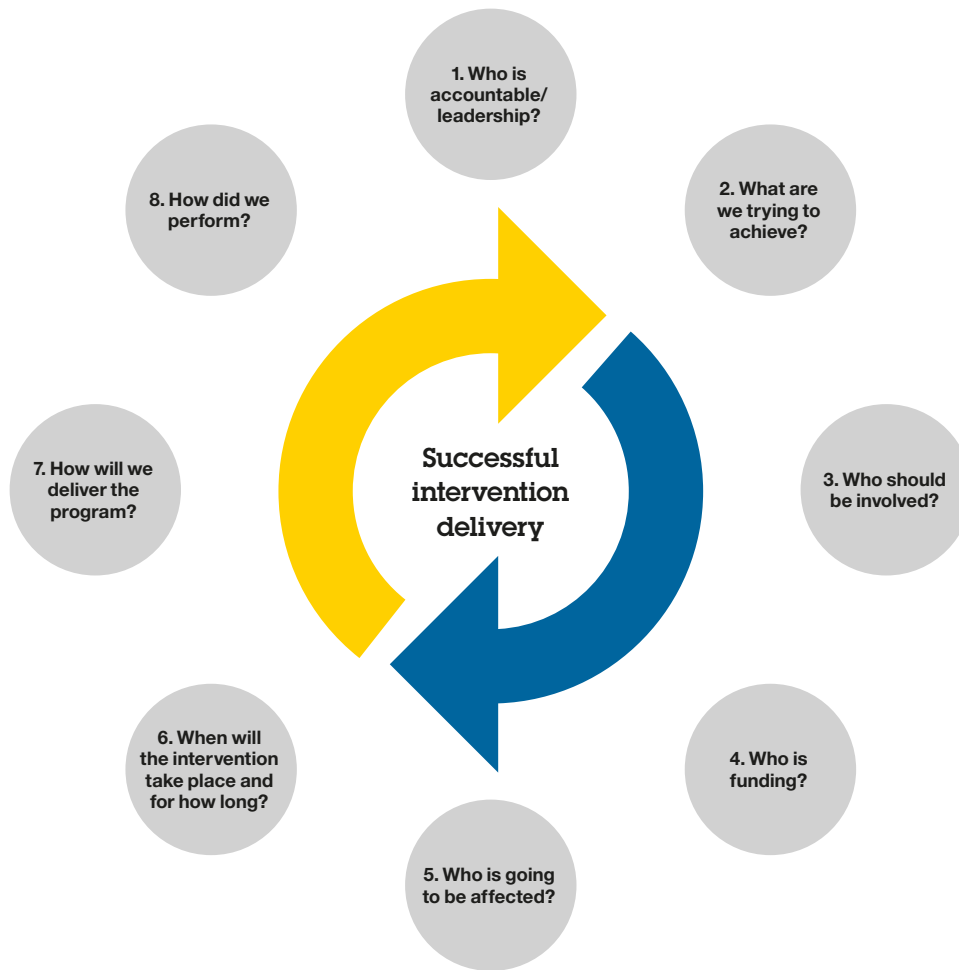


Figure 7: Programme planning and implementation process

1. Who is accountable?

The first, and arguably most important, decision is to clearly identify who owns this intervention, both from within the intervention team and within BCC with regard to its assessment. These two individuals should have clearly demarcated decision-making authority within their respective domains.

2. What are we trying to achieve?

There needs to be clarity on what the intent of the intervention is from the requestor, and BCC must confirm that the objective is consistent with the City's aims and objectives.

- Information used:
 - What are BCC's critical areas of focus?
 - What are the aims and objectives of similar interventions?
 - What interventions are currently being delivered?
 - What interventions are currently under consideration?
- Outcome:
 - Less duplication of interventions
 - More connected interventions
 - More effective interventions
 - Identification of best practices

3. Who should be involved?

This should not only consider the group requesting funding for the intervention but must also consider all external bodies who could, or should, be involved.

- Information used:
 - In other related interventions, who was involved and were they strong contributors?
 - In the post-delivery evaluation was it determined that any entity was missed?
- Outcome:
 - More connected interventions, better interagency working and effective and consistent service delivery

4. Who is funding?

BCC must look not only at its own funds but also at whether co-funding is available through other bodies or indeed whether it would be more appropriate for a particular intervention to be funded by a different body.

- Information used:
 - Who funded similar programmes in the past?
 - Were any co-funders used?
 - What was the budgetary performance of similar programmes in the past?
 - Is the budget being requested sufficient or is there a high risk of either failure or additional funding required?
- Outcome:
 - Interventions that are fiscally stable and sufficiently funded through the appropriate funding routes
 - Right funding (versus potentially overfunding) of interventions

5. Who will be affected?

The intervention must clearly define its target population. The intervention must state the demographics of its target, for instance city locality, sex or age group; what relevance this has to the wider population exhibiting similar issues; and so on.

- Information used:
 - What programmes addressing a similar need were previously successful?
 - What population did they address?
 - Did the post project evaluation indicate that subsets of the population were less successfully addressed through this style of intervention?
 - Did the programme see outcomes that indicated that a change to the population would have been more successful?
- Outcome:
 - Interventions that are precisely targeted at a population they can help most

6. When will the intervention take place and for how long?

- Information used:
 - What did previous programmes with a similar target objective find to be effective?
 - Did the results of a long-term programme tail off after a certain period (indicating that the duration was too long) or did a short-term programme continue to see a strong uplift in effectiveness (indicating that it may have been a good idea to extend it)?
 - Were there times of year that certain programmes tend to be less effective (such as drinking campaigns at Christmas)?
- Outcome:
 - Interventions that are planned to take place at the right time and for the optimum duration

7. How will we deliver the programme?

It is important to understand delivery aspects, such as: how will the intervention be run?; who will run it and when?; what data measures does BCC require of the programme and at what intervals does that data need to be collected?; how will these be measured?; and importantly, how will BCC and the programme address the risk of fraudulent responses?

- Information used:
 - How were prior programmes undertaken?
 - How successful were they?
 - In post-project review, what data elements did the intervention team and BCC wish they had recorded from the start?
 - What lessons were learnt in terms of how similar interventions were operated?
 - Were fraudulent responses found to be a significant issue, and were any lessons learnt to reduce the issue in the future?
- Outcome:
 - An intervention that is delivered in the most efficient way possible whilst meeting the needs to demonstrate their level of success

8. How did we perform?

When an intervention is complete it is very important to ensure, before closing the project down, that all lessons learned are clearly articulated. This information is critical to decision making in the prior seven steps.

- Information used:
 - How did the programme perform in all aspects of core delivery? (listed as data used in the prior seven points)
 - What could be improved next time?
 - Was fraud an issue and if so how could it be addressed next time?
 - What would be changed if the same programme were run again?
- Outcome:
 - Knowledge is captured to ensure that future programmes can be delivered even more effectively and successfully

Cyclical nature of the decision-making and intervention delivery lifecycle

The key intent in each of these steps is not just to enforce a good evidence-based decision-making process but also to ensure BCC and intervention providers continue to learn from their experiences. This is evidenced by step eight in the process, but it should be noted that reaching step eight is not the end of the process. By definition, to ensure the growth of knowledge capital and to capture the ongoing nature of managing intervention requests, this cycle will become a permanent cycle and, in effect, is a continual spiral.

Bringing it all together

Integrating the decision-making cycle, its cyclical nature and its dependence on the use and creation of good data, Figure 8 shows how these link together into an ecosystem that supports BCC's key objective of a sustainable, fair, consistent and evidence-based decision-making and delivery process.

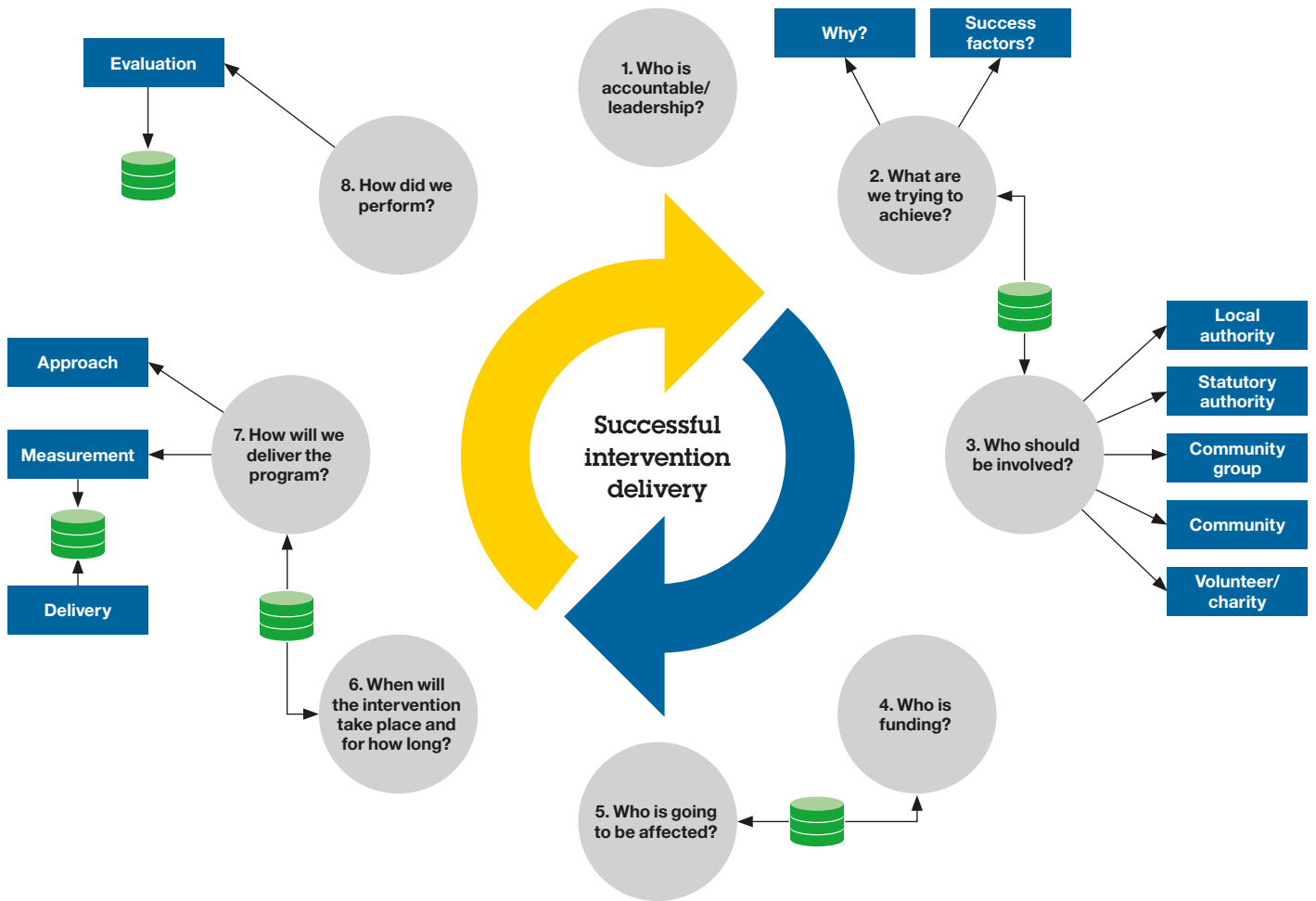


Figure 8: Ecosystem

2a: Identify intervention-level success metrics

Scope and expected outcomes

Scope

BCC should create a set of measures of characteristics that allow a better understanding of the specific aspects of an intervention that make it successful. These should be grouped by intervention type, or objective, to ensure that different interventions with the same objective can be readily assessed. Analyses of these characteristics will assume that programme variables are an independent variable (or predictor) of intervention outcome measures (see Recommendation 2b).

BCC should take the following actions:

1. **Create an inventory of all programmes and interventions across a specified area.** BCC should identify a small set of programmes or interventions (within a specific area of the city or among several agencies willing to take part in a small pilot project). It should then identify a set of at least 30 interventions for measurement. These should be grouped by their objective to reduce the number of measures that need to be created and to ensure that valid comparisons within an intervention set can be made.
2. **Create an initial measurement pilot project, identifying all stakeholders and resources, in which intervention data and outcomes will be collected for a specific period.** Given the impending transition of responsibility to BCC, it should begin planning the pilot as soon as possible. Data collection and analysis should be completed to allow adequate time for any revision to metrics or processes ahead of the transition.
3. **Identify predictor (intervention) variables to be collected for all interventions included in the pilot project.** Examples of appropriate predictors, based on stakeholder feedback collected during the current project, include the following:
 - a. Number of participants in intervention
 - b. Standard success metric
 - c. LOC/WB
 - d. Value for money
 - e. Target group descriptive data (for example, gender, age, education level, employment status, measured as means and standard deviations) — an overall measure of male and female participants within the intervention
 - f. Duration of programme or intervention
 - g. Community background of participants — (measured as integrated/non-integrated) whether or not the participant group includes individuals from a Loyalist and Protestant background only, Nationalist and Catholic background only, or integrated backgrounds
 - h. Graded (progressive) exposure to opposite community background — (measured as yes/no) whether the programme includes gradual exposure to members of an opposing community background

Expected outcomes

- BCC will be able to make objectively informed decisions about funding existing and proposed interventions
- BCC will have the capability to compare programmes and interventions of all types based on the standard metric, which provides an equivalent basis of comparison
- For programmes determined to be substandard, BCC will be able to offer suggestions for improvement based on data collected from other, more successful programmes

Cost of inaction

Continued expenditure of budget without noting any significant change in deprivation and other economic indicators. Lack of return on investment is a notable concern as community planning and budget responsibilities are transitioned to BCC in 2015 - 2016.

| Proposed owner and stakeholders | Suggested resources needed |
|--|--|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> Northern Ireland Statistics and Research Agency (NISRA) statistical staff BCC statistical staff Intervention agencies and organisations | <p>Skilled statisticians with knowledge of psychometrics and advanced descriptive and inferential methods in the behavioural sciences.</p> <p>Cost estimate: Low – the primary cost will be in the form of resources to oversee the methodological and analytic activities required by this recommendation, unless appropriate staff can be identified in the existing organisation.</p> |
| Dependencies | Key milestones, activities and timeframe |
| <p>For maximum impact, this recommendation needs to be developed in connection with Recommendations 2b and 2c.</p> | <p>Short term (up to 6 months)</p> <ul style="list-style-type: none"> Identify measures, including the standard metric and programme variables, and develop and adopt any required new scales Identify a geographically limited trial project Gather agency advocates and identify a process for data collection <p>Medium term (6 - 12 months)</p> <ul style="list-style-type: none"> Gain any required input from community, volunteer, public and private stakeholders Socialise and obtain support from stakeholders Initiate programme inventory and programme data collection <p>Long term (1 - 2 years)</p> <ul style="list-style-type: none"> Complete data trial, including all data collection Complete initial quantitative analysis of collected data |
| Priority | |
| High | |

Recommendation 2b: Define a single citywide metric

Scope and expected outcomes

Scope

BCC should identify a standard metric for measuring individual outcomes of health interventions. This metric will allow better quantitative comparison of programmes (targeting any issue) and provide a basis for making funding decisions about interventions across all neighbourhoods.

BCC should take the following actions:

- Determine relevant outcome strategy to be operationalised (for example, city planning strategy).** For the purposes of this project, the team relied on BCC strategy that identified citizen wellbeing as a major outcome of its initiatives, thus leading to the operationalisation of wellbeing and a related underlying cognitive construct, locus of control. However, should Belfast City leadership determine that this outcome measure is not preferred, we recommend that any outcome measurements are in line with both Belfast city and Northern Ireland regional strategy. If an appropriate strategy does not exist or is not considered suitable, BCC should consider engaging independent experts to facilitate collaborative strategy development across all city, neighbourhood, agency and organisation stakeholders. Based on existing strategy at the time of this project, the team recommended the LOC/WB metric, which appeared to be in line with strategy at BCC, PHA and other statutory bodies at Stormont.
- Identify a specific standard metric for all programmes, including how it will be measured at individual, neighbourhood and city levels.** The Smarter Cities Challenge team proposes calculating a LOC/WB composite score for individuals, mean LOC/WB for neighbourhoods and LOC/WB variance for City-level disparity — or a similar approach if a different standard metric is developed.
- Secure agreement on the standard metric to be used.** Recommendations should be socialised with relevant stakeholders across the city to secure buy-in. These discussions should be supported by references to best practices in psychological theory and measurement. The time required for this should not be underestimated as it will be necessary to educate stakeholders to some degree, and broad consensus around a single, universal metric may be difficult to achieve. However, it will be an invaluable step in ensuring that stakeholders remain committed to an operationalised strategy. It is important that all stakeholders see this metric as a fundamental, underlying cognitive structure for all health outcomes, as well as broader human outcomes, such as educational attainment and job performance and satisfaction, which are all supported by existing psychological research.
- Measure the standard metric at the beginning and end of all interventions in the pilot project (see Recommendation 2a), for all participants.** BCC should identify specific data collection procedures in collaboration with NISRA. In the LOC/WB example, the team used a before/after difference score as the final metric for further statistical analysis. In addition to the standard metric, BCC should collect postcodes to enable it to calculate neighbourhood and city statistics. For long-running interventions, BCC should consider collecting metrics at regular intervals throughout the intervention.
- Identify initial outcome questions to be answered as part of the trial measurement programme, along with statistical methods appropriate for answering these questions.** This step should include the input and agreement of statisticians from NISRA, BCC and Stormont. Examples may include questions and analytic methods, such as: “Which intervention has the best LOC/WB outcome?” (descriptive analyses), “What factors predict LOC/WB of participants?” (multiple regression), and “Is programme success similar in East and West Belfast?” (analysis of variance [ANOVA]).
- Commission ongoing psychometric analysis and modification of any scales or measures by skilled statisticians.** This step should be taken to ensure appropriate reliability, validity and sensitivity of measurement.

Expected outcomes

See Recommendation 2a

Cost of inaction

- See Recommendation 2a
- This recommendation will provide improved insight into whether programmes are providing adequate or needed support to communities, as well as characteristics of successful interventions

| Proposed owner and stakeholders | Suggested resources needed |
|---|--|
| See Recommendation 2a | See Recommendation 2a |
| Dependencies | Key milestones, activities and timeframe |
| For maximum impact, this recommendation needs to be developed in connection with Recommendations 2a and 2c. | See Recommendation 2a |
| Priority | |
| High | |

Recommendation 2c: Determine parameters for decision making

Scope and expected outcomes

Scope

BCC should develop measures and parameters through a pilot project that incorporates an initial set of independent variables (predictors) and outcomes (for example, LOC/WB, success metrics) for all interventions. This approach will allow BCC to engage appropriate resources and test measurement tools and procedures with a small set of agencies and stakeholders prior to the transition of responsibility to BCC.

BCC should take the following actions:

1. **Identify pilot participants:** Members of BCC and relevant stakeholders should jointly identify candidate pilot participants. This should include the specific interventions, agencies and locations to be targeted within the pilot. The pilot should be limited to specific locations, such as East and West Belfast, to keep data collection and analysis manageable.
2. **Secure commitment of selected pilot agencies (intervention providers):** Education will be required to help pilot intervention providers understand more about the approach, the value of the data they collect, how the data will be used and the approach to analyzing the data. Demonstrating the advantage of participating in a pilot will help motivate them and will aid in maintaining their involvement. Agencies included in the pilot should be willing to collect data before and after the intervention, at a minimum, and possibly after a set amount of time for long-term interventions. They will need to comply with all data collection, privacy and analytic needs throughout the pilot.
3. **Execute data collection for interventions:** This will include collection of programme success metrics and the standard metric (see Recommendations 2a and 2b).
4. **Collate data from all intervention providers:** (See Recommendation 3a).
5. **Calculate analyses using descriptive and inferential statistical methods:** This step should be completed by statisticians skilled in the quantitative methods of behavioural science.
6. **Interpret findings with regard to funding interventions:** Funding decisions should be based on a holistic view of three types of outcome metrics, as below:
 - a. **Intervention success:** This metric will vary by type of programme (see Recommendation 2a) and might not be measurable for some programmes. However, where it is available, successful programme completion should be considered, especially relative to other similar programmes. For example, alcohol programmes might measure success based on the number of daily drinks decreased by an intervention, while exercise programmes might be judged on how many hours participants exercise weekly as a result of the programme.
 - b. **Standard metric (for example, LOC/WB):** This measure is a subjective-perceptual composite rating developed to respond to universal concerns about issues impacting the Belfast community. This metric, or another standard metric, should be utilised as a common basis of comparison for all programmes and interventions.
 - c. **Value for money:** Financial considerations are clearly critical in making decisions about ongoing support for interventions. If an intervention has extremely high cost with little demonstration of programme success and participant LOC/WB, it should be noted. Conversely, if an intervention is relatively low cost with high outcomes, the data collected and quantitative analyses will highlight this pattern too.
7. **Modify variables, metrics and methods as needed:** Critical evaluation of the pilot should include psychometric analysis of any scales developed to understand their quality in practical use, as well as assessment of the methodological process itself. Difficulties in data collection, management and analysis should be considered and changes made to optimise these issues.

Expected outcomes

See Recommendation 2a

Cost of inaction

See Recommendations 2a and 2b

| Proposed owner and stakeholders | Suggested resources needed |
|--|--|
| See Recommendation 2a | See Recommendation 2a |
| Dependencies | Key milestones, activities and timeframe |
| For maximum impact, this recommendation needs to be developed in connection with Recommendations 2a and 2b | See Recommendation 2a |
| Priority | |
| High | |

Recommendation 2d: Implement a programme planning and execution model

Scope and expected outcomes

Scope

BCC should implement an operational model as described on pages 15 - 16: "Process: Define an evidence-based decision-making model".

It is critical to socialise this with, and get the agreement from, stakeholders in the process to ensure that everyone involved understands it, knows why it is critical and buys into the inherent fairness of an evidence-based decision-making model. This applies at all levels both within and outside BCC, starting with councillors through to individual intervention providers. All must agree at the council level, and, at a minimum, buy-in to the reasons this process is essential must be sought with all other stakeholders. This needs to be recognised and managed fairly and appropriately.

It is imperative that this operational model is central to the new community planning process, and that its use is mandated as a prerequisite of the process to gain funding. BCC must enforce this model in order to make the recommendations in this report effective.

Expected outcomes

The creation of a common, consistent, repeatable and fair decision-making model that is:

- Agreed at all appropriate stakeholder levels
- Understood by all stakeholders who will be requesting funding
- Enforced as part of the community planning process for funding

Cost of inaction

- An inability to demonstrate that funding decisions have been based on factual and undisputable data
- An increased likelihood of appeals to funding decisions and the inherent time and cost of handling these
- An inability to make funding decisions

| Proposed owner and stakeholders | Suggested resources needed |
|--|---|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers • BCC | <ul style="list-style-type: none"> • Funding • Change management resources • Management <p>Cost estimate: Low–medium (excluding costs of supporting recommendations)</p> |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> • Buy-in from stakeholders • Implementation of BCC community planning process • Data privacy requirements • Requirement for providers to secure funding | <p>Short term</p> <ul style="list-style-type: none"> • Gain agreement and funding • Define roles, responsibilities and timeline • Develop the process <p>Mid term</p> <ul style="list-style-type: none"> • Confirm buy-in to the process • Ensure policies for the community planning process mandate the use of the model <p>Long term</p> <ul style="list-style-type: none"> • Implement the model |
| Priority | |
| High | |

Technology: Management system for providing services and consolidating information

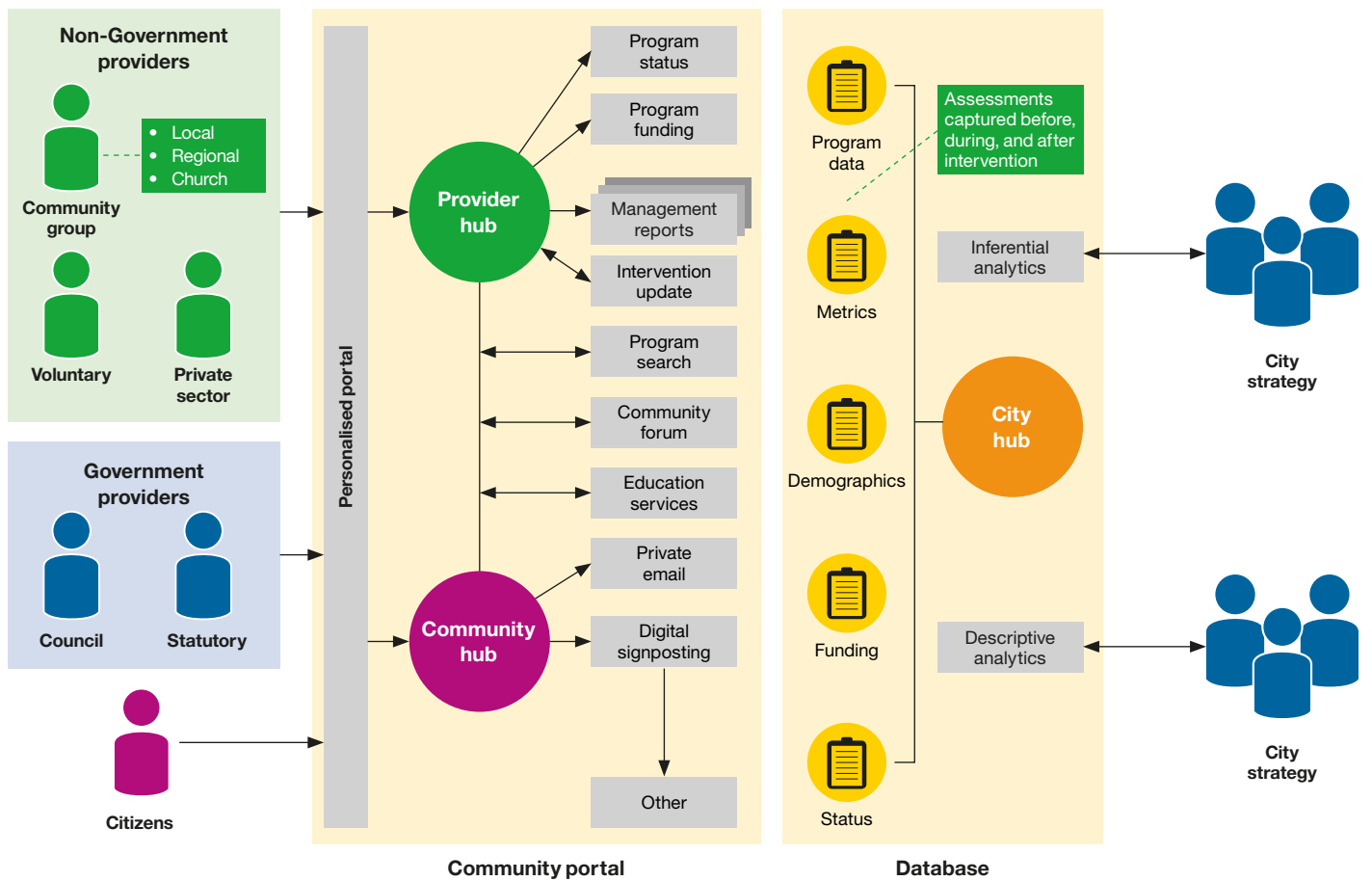


Figure 9: IT ecosystem to support users and the process recommendations

Figure 9 depicts the IT solution that will realise the recommended measurement, decision-making and delivery approach.

This can be split into three key areas, as follows:

1. The **portal** enables access to the solution. This provides personalised access to functions that are relevant to the specific user. And it ensures that only data owned by that particular user is shown, respecting data privacy. The team has identified three groups of users and, in order to delineate the options available to them, defined a “hub” of functions for each, as described below:
 - **Community hub:** Allows members of the community to interact with the council. They can use it to locate services and interventions that are available to them; participate in online communities that are relevant to their neighbourhood, to any interventions that they participate in and across the city of Belfast; and (where needed) protect their identity when doing so. Critically, the solution allows them to locate information based on their personal needs.
 - **Provider hub:** Allows intervention providers to interact with the council, store data regarding interventions they are responsible for and retrieve management reports on their progress to date. This component is critical to ensuring providers can easily and efficiently interact with the council; provide information that is required; and gain significant benefit themselves by empirically proving their results, which will subsequently help them gain future funding.
 - **City hub:** An internal, BCC-focused hub that provides both the administrative capabilities required to operate the solution and access to the analytics tools described below.

2. The **analytics** capabilities are the heart of the system. They enable BCC to make comparisons between programmes and, together with intervention performance data, provide the vital ingredient to evidence-based decision making.
3. Finally, underlying the whole solution is the **database**. This stores and manages all information that is captured and utilised.

The combination of these components, and the processes and techniques outlined throughout this report, will provide the repeatable, consistent, sustainable and, overall, fair decision-making process that BCC wishes to implement in the new community-planning process.

Figure 10 and 11 shows how, at a city level, data is generated and used by business, government, education and the general population, with examples, including books, journals, documents, metadata, health records, audio, video, analog data, images and files. Social media is a growing contributor of data and could be viewed as providing relevant (albeit not necessarily accurate) information the quickest. It is anticipated that data will grow to eight zettabytes by the year 2015¹⁷ and roughly 90%¹⁸ will be unstructured; hence, new approaches are being developed to “mine” information from the data.

Cities are inherently complex places, and Information Technology can be equivalently complex, however when the two come together, order can be brought to the mass of information and communication, developing order out of the chaos.

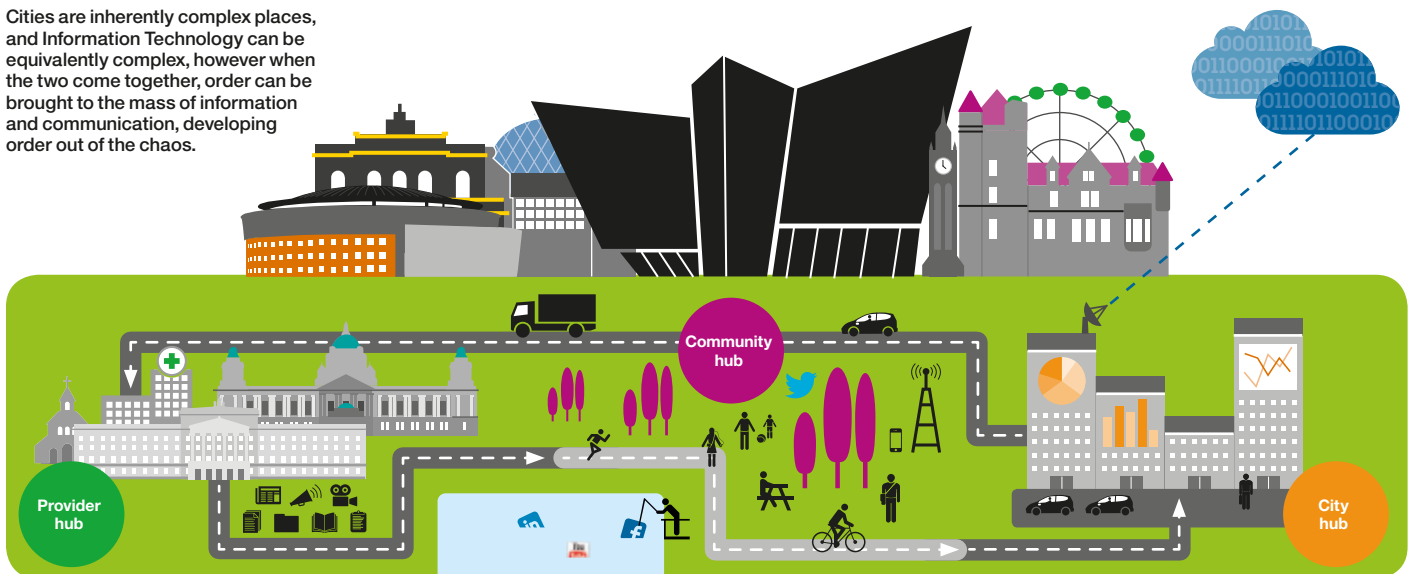


Figure 10: Connectivity

The importance of new technology

In a 2012 IBM Global CEO study¹⁹, technology was identified for the first time as the “most important external force impacting organisations”. The reasons for this are twofold. First, the quick and significant change in technology is recognised as a primary method to provide differentiation and, second, the fast pace of change is causing enough disruption within organisations for them to rethink how they use and deploy technology. By 2014, it is expected that 62% of workloads will be cloud-based (for example, private, public hybrid). In addition, while only 16% of CEOs connect with clients via social media today, this is expected to increase to 57% in the next three to five years. Finally, the growth in mobile access is causing a more localised shift on where data resides, with 90% of users keeping their mobile device at arm’s length 100% of the time.

For the reasons described above, IBM recognises not only the individual importance of mobile, analytics, social and cloud technologies but also the importance of the interrelationship of these technologies.

It is critical to ensure that all citizens feel a sense of “digital inclusiveness” and that all of Belfast pull together to make the city a better place. These new technologies are critical to making this happen.

Social technologies provide two key opportunities. First, BCC could use social media to communicate with citizens in a manner that is consistent with their individual preferences. Many people nowadays, especially younger generations, treat social media as their preferred communication mechanism, and eschew more traditional methods of communication. Second, City leaders could digest information from these outlets and analyse it for trends and feedback on how they are performing. Learning from this would enable the leaders to respond more quickly than would previously have been the case.

Belfast has some of the highest mobile device ownership of any city in the UK. This means the IT solution must be not only compatible with but also actively use mobile devices in order to extend its reach to the majority of the populace. There are inherent advantages to mobile technology that City leaders must be quick to take advantage of: the fact that citizens carry these devices throughout the day and are effectively permanently connected gives an opportunity for rapid communication and feedback that would never have been possible only a few years ago.

Cloud technology could provide a centralised approach for deploying services across a distributed environment, such as the city (or more broadly). This approach was successfully applied as a Virtual Computing Lab²⁰ and has since been applied more generally for business and other applications.

The combination of these three technology recommendations would lead to the smart use of IT to support the evidence-based decision-making approach, while strongly increasing the level of interaction and connectedness of the City with its citizens. These recommendations would contribute to making Belfast a Smarter City as below:

- **Open:** A clearly defined and non-biased approach to decision making in which the only determinants are fact based
- **Collaborative:** Brings together all stakeholders to work together in order to bring about the best outcome for citizens
- **Transparent:** Trust in the process and outcomes can be built upon clearly reasoned outcomes

- **Open**
- **Collaborative**
- **Transparent**

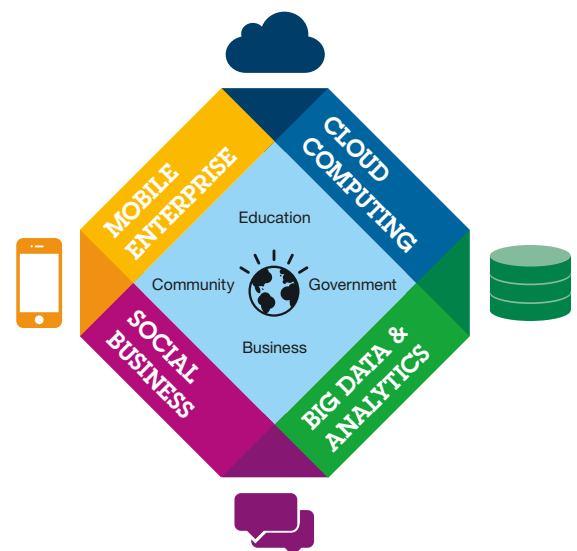


Figure 11: Elements of connectivity

Recommendation 3a: Implement an IT solution to support the new services

Scope and expected outcomes

Scope

BCC should implement an IT solution that will enable evidence-based decision making and provide access to services for all parties interested in the community. This includes intervention providers, citizens, statisticians, business or community leaders and groups, and councillors.

In order to clearly define the options available to each user group, BCC should create “hubs” of related functionality. Each user group should have a customised list of available functions specific to its role in the system. Data should be protected so users can only see data for which they are responsible. For the first release three (virtual) hubs are proposed: community, provider and city.

As well as searching for available interventions and tracking the status of interventions underway, the solution should include support forums. These should promote the sharing of information on interventions and community issues and invite feedback.

The architecture should be designed to support growth without significant changes and enable anonymity where necessary.

Expected outcomes

- Ease of deploying services
- Ease of collaboration
- Ease of information sharing and service availability
- A population with better access to services
- Improved health and wellbeing
- Interconnected people undertaking initiatives
- A virtual shared space
- Virtual connection of service providers
- Instant access to data

Cost of inaction

- Inability to compare and contrast funding requests
 - Inability to measure the performance of interventions
 - Services continue to operate in siloes
 - People continue to be unaware of what services are available to them
 - New initiatives are not taken up by the most needy
 - Continued duplication of services
-

| Proposed owner and stakeholders | Suggested resources needed |
|---|---|
| <p>Owner: BCC</p> <p>Stakeholders:</p> <ul style="list-style-type: none"> • Communities • Providers • BCC • Academics | <ul style="list-style-type: none"> • Funding • Technical resources • Hardware and software <p>Cost estimate: Medium+</p> |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> • Implementation of community planning tool • Data privacy requirements • Requirement for providers to secure funding • Connectivity | <p>Short term</p> <ul style="list-style-type: none"> • Gain agreement and funding • Define roles, responsibilities and timeline • Develop architecture <p>Mid term</p> <ul style="list-style-type: none"> • Implement architecture • Pilot and assess <p>Long term:</p> <ul style="list-style-type: none"> • Plan rollout of hubs • Communicate and educate |
| Priority | |
| Medium | |

Recommendation 3b: Utilise social technologies to enhance available information

Scope and expected outcomes

Scope

BCC should leverage trends in cloud, mobile and social technology to provide more flexible and interactive communication for communities, groups and individuals. It should first focus on enabling communication among communities (for example, via handheld devices, Facebook and Twitter) and sharing information about city activities (for example, via digital billboards and Bluetooth sending). As data is generated via social media, BCC should extract relevant information and analyse trends in order to determine needs, interests, issues and other relevant indicators (such as wellbeing).

Expected outcomes

- Improved information sharing and knowledge of services
- Citizens better informed of needs, interests and other relevant indicators
- Reduced isolation
- Interconnected people undertaking initiatives
- Generation of dynamic information

Cost of inaction

- People continue to be unaware of what services are available to them
- The use of either dated or nonexistent information when making decisions
- Continued segmentation at multiple levels

| Proposed owner and stakeholders | Suggested resources needed |
|--|--|
| See Recommendation 3a | See Recommendation 3a |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> • Connectivity • Commitment to long-term posting of relevant and interesting information, as well as ongoing analysis of social information | See Recommendation 3a |
| Priority | |
| Medium | |

Recommendation 3c: Enable ease of access using mobile technology

Scope and expected outcomes

Scope

BCC should ensure its services are responsive to mobile devices. This will increase the uptake of services by individuals who do not have PCs or are more inclined to rely on mobile access. Predominately, this should increase participation by younger generations. Mobility of access will enable more dynamic and up-to-date sharing of information.

Expected outcomes

See Recommendation 3b

Cost of inaction

See Recommendation 3b

| Proposed owner and stakeholders | Suggested resources needed |
|--|---|
| See Recommendation 3a | See Recommendation 3a Cost estimate: Low–medium |
| Dependencies | Key milestones, activities and timeframe |
| <ul style="list-style-type: none"> Connectivity Development of mobile-supported technologies | See Recommendation 3a |
| Priority | |
| Medium | |

5. Roadmap for recommendations

BCC has a hard deadline to have the community planning process in place by April 2015. As this is a new statutory duty introduced as part of local government reform, there is currently no such process in place. Implementation of the recommendations can be split into five areas, a number of which overlap.

See Appendix C for a sample roadmap.



BCC must seek **agreement** at a City leadership level on the recommendations made in this report. It must then seek funding.



In the **planning** phase, BCC must determine executive sponsorship to ensure that management and stakeholder buy-in exists within organisations that will be part of the recommended delivery project and solution and also within the community planning process.

BCC must define project plans that describe, at a detailed implementation level, all the activities that need to be completed in order to have the business processes, data and systems in place for go-live.

BCC should initiate parallel planning phases to look separately at the initial metrics, measures and questionnaires that will underlie the evidence-based decision-making process and within the IT stream of activities in order to determine the architecture that will underpin the solution. Significant planning will be needed to architect a solution that is capable of rapid and iterative delivery of updates. When considering the implementation strategy, detailed analysis into the available options with regard to outsourcing (or insourcing) the delivery responsibility and hosting the final solution will be required. The results of this will feed into, and enhance, the project plan.



During the **design** phase BCC must expend significant effort determining the initial measurement models. Further work will be done upon the city LOC/WB metric (see Recommendation 2b). And it should consider pilot programmes, determining what success criteria will be applied to these programmes and how this success will be captured and measured.

Simultaneously, BCC should commence business design and change management to prepare the council and its cooperating partners for their new roles and requirements to deliver the effective evidenced-based decision-making policies and procedures.

In parallel, the IT stream should start its analysis and design phases, taking in the evolving work on the data and evaluation techniques and putting in place the first version of the platform that will bring the solution to life. Procurement of IT hardware and software also should commence during this phase so that it is available during the implementation phase for testing.



During the **implementation** and testing phase, BCC should continue to define the metrics and measures required for go-live, and hone in on the specifics of the first programmes. It is anticipated that this will be made possible through Local Government Reform. Whilst doing this, BCC should commence a marketing campaign aimed at raising awareness of the possibilities afforded by the new process and the new information sharing and gathering capabilities.

Training for the first users, both for BCC and for external users, should commence during this phase. Experience has shown that in instances of a system with a large user base, it is best to follow a train-the-trainer approach; this will reduce the cost to BCC and move some of the responsibility out to the community.

This phase is critical to the IT stream of activities in which the build and testing will take place. In effect, this delivery phase will encompass five technical phases, as below:

- Implementation (build)
- Technical testing
- Integration testing
- System and performance testing
- Release

Significant complexity will arise from parallel streams of activities on the three main components of the IT solution (database, analytics and portal). When these are planned in detail, a phased implementation strategy may be deemed necessary to reduce the delivery risk.



Once the initial version of the system is live the work is far from over. In the first months it should be expected that users will learn a lot about the initial factors, approach and decision statistics. The system is likely to require rapid updates in order to provide the most benefit to the users. Subsequently, updates and additions to the metrics and statistical analysis provided by the system should be expected; this should be viewed as a positive sign that the system is enhancing BCC's decision-making capability through the constant integration of best practice and experience. Key to these changes will be BCC identifying new intervention and programme types and defining the questions and criteria for scoring their success.

6. Conclusion

Belfast is increasingly recognised as a successful and vibrant city despite the persistence of deprivation, segregation and poverty in some areas. Many interventions delivered by a variety of agencies from public, private, voluntary and community groups have failed to alleviate this situation, and, in some cases, the gap in health inequalities between rich and poor areas has widened.

The goal of the Smarter Cities Challenge was to:

Address the need for a smarter and more effective approach to planning and decision making and provide a single view of activity, based on multiple data sources from several agencies.

While the study areas and the issue of health inequalities were used as a focus, the recommendations relate to a wider model for evidence-based decision making.

A new approach to community planning and resource allocation will be introduced in 2015²¹. This provides an opportunity to do things differently: to facilitate the sharing of information among statutory agencies; to analyse data to define required outcomes and then distribute these results to the appropriate communities so that activities across all parties are integrated to solve city problems.

In order for BCC to best align its resources to support interventions that will deliver optimal outcomes, it must create a collaborative environment with clear accountability and leadership and implement an evidence-based decision-making model. It should introduce a management system for providing services and consolidating information to support this collaborative environment.

The Smarter Cities Challenge team believes this is achievable if it is supported by the right approach, content, enablement and governance structures. If implemented as described in this report, this new model has the potential to enhance BCC's community planning process as follows:

- Providing better services to citizens by designing targeted interventions
- Allowing BCC and other agencies to better understand the city's community ecosystem and facilitate smarter funding
- Measuring and benchmarking performance against outcomes
- Sharing intervention best practice across communities to reduce deprivation
- Using the standard metric to track the improvement in wellbeing of individuals, in neighbourhoods and across the city.

Belfast City leaders have stated their intent to integrate multiagency activity to solve city problems using evidence-based decision making. Progress towards this conclusion will require not only resources and strong project management but also outstanding leadership, perseverance and commitment.

The team believes the recommended solution has the potential to deliver the desired outcomes, although the journey will involve many challenges. The potential of these recommendations to transform Belfast into a Smarter City is unparalleled — the journey, therefore will be a worthwhile one.

7. Appendix

A. Acknowledgements

- Active Communities
- Arts Council Northern Ireland
- Belfast City Council
- Belfast City Council councillors
- Belfast City Council Good Relations and Peace III Team
- Belfast Chamber of Trade and Commerce
- Belfast Education and Library Board
- Belfast Healthy Cities
- Belfast Health and Social Care Trust
- Belfast Health Development Unit
- Belfast Interface Project
- Belfast Metropolitan College
- Belfast Outcomes Group (children and young people)
- Belfast Regeneration Office
- BCC Youth Forum
- Bryson House
- Business in the Community Northern Ireland
- Chief Medical Officer
- Community Relations Council
- Community Restorative Justice Ireland
- Council for Catholic Maintained Schools
- Deloitte
- Department of Employment and Learning
- Department of Health, Social Services and Public Safety
- Department of Justice, Operations Branch
- Department for Social Development
- Frank Gillan Centre
- Dr. Duncan Morrow, UU
- Dr. Eamonn Phoenix, Stranmillis College
- Dr. Eddie Ronney, PHA
- Dr. Esmond Birnie, PwC
- Dr. M. Satish Kumar, QUB
- Dr. Mike Morrissey
- Dr. George O'Neil, GP
- Dr. Grainne Bonnar, GP
- Dr. Peter Murphy, GP
- East Belfast Area Youth Project
- East Belfast Community Development Association
- East Belfast Mission
- East Belfast Partnership
- Forum for Action on Substance Abuse (FASA)
- Federation of Small Businesses
- GEMS Northern Ireland
- Greater Shankill Partnership
- Healthy Living Centre East
- Include Youth
- Institute for Conflict Research
- Invest NI
- Lenadoon Community Forum
- Lighthouse Ireland
- Local Commissioning Group
- Naomi Long, MP for East Belfast
- North Belfast Partnership
- Northern Ireland Housing Executive
- Northern Ireland Youth Forum
- Northern Ireland Commission, Children and Young People
- Northern Ireland Council for Voluntary Action
- Oasis Northern Ireland
- Dr. Paul Nolan
- Police Service of Northern Ireland
- PricewaterhouseCoopers
- Prince's Trust
- Probation Board Northern Ireland
- Prof. John Thompson, QUB
- Prof. Pete Shirlow, QUB
- Prof. Mike Tomlinson, QUB
- Public Health Agency
- Save the Children
- Schools in East and West Belfast
- Short Strand Community Forum
- Sinclair Stockman, Digital NI2020
- South Belfast Partnership
- Suffolk Community Forum
- West Belfast Partnership
- Youth Justice Agency
- Youth Workers in East and West Belfast

B. Team biographies



Sandra Black
Director, IBM Global Business Services
(GBS) Data Security and Privacy

Black is responsible for enabling the global GBS community risk management of data privacy and security practices across service delivery professionals. She manages the GBS data security and privacy programme and supports the process and tools in use worldwide.

Black began her career with IBM 26 years ago, during which time she has held numerous leadership positions in sales, project management, business transformation and application development and maintenance. For the greater portion of her career with IBM, she has led national and global business transformation programmes, including workload balancing, process maturity and, most recently, data privacy and security.

Black was programme manager for workload redistribution, reducing IBM headquarters' US national administrative costs. As a senior manager over internal application development and maintenance processes, she led the achievement of the Software Engineering Institute's Capability Maturity Model Integrated Level 5 within a 5,000-employee organisation. As an Executive Manager, she implemented a global programme encompassing more than 100,000 practitioners that standardises the way data security and privacy service delivery risks are identified and mitigated.

Before joining IBM, Black's experience ranged from small business operations management to large enterprise sales and portfolio management within the graphic design services, telecommunications and financial services industries.

Black holds a Bachelor's degree in marketing and management from Long Island University. She is certified in project management and as a data privacy professional.



Anne Cunningham
Director, IBM Professional Development
Centre of Excellence

Cunningham is responsible for programmes that support all areas of professional development, including performance management, the Career Framework, expertise management and career development for IBM employees around the world. Cunningham leads a global team of more than 60 professionals.

Previously, Cunningham was the global Professional Development leader for GBS, IBM's consulting division. In this role, she was responsible for shaping and executing the GBS professional development strategy. Cunningham joined IBM during the PricewaterhouseCoopers acquisition 11 years ago, at which time she co-led the integration for professional development.

Cunningham has more than 19 years of experience in designing, developing, implementing and supporting programmes that contribute to the development of IBM professionals.



Steven Hunter, Ph.D.
IBM Fellow, VP, Chief Technology Officer

Hunter is Vice President and Chief Technology Officer (CTO) for the IBM PureFlex™ System Group. He is an IBM Fellow, the highest honor a scientist or engineer at IBM can achieve; an Adjunct Professor at North Carolina State University; and a Senior Member of the Institute of Electrical and Electronics Engineers (IEEE).

Hunter began his IBM career in Research Triangle Park, North Carolina, almost 30 years ago in the Networking Division, where he worked on a variety of products, technologies and standards. He later transitioned into the IBM x86 server organisation, for which he was Systems Architect and CTO for the IBM BladeCenter® offerings and led industry activities to define server cluster standards and technology.

Hunter has continued developing next-generation system concepts, broadening into areas of high availability, power efficiency, workload acceleration and, most recently, analytics. He holds patents spanning hardware and software technology, has published numerous papers and has presented at a variety of conferences and symposiums. Hunter is an electrical and computing engineering (ECE) alumnus of Auburn (BS 1984), NC State (MS 1988) and Duke (PhD 1997) Universities.



Nick Raponi
Cúram Services Business Leader,
UK and Ireland

Raponi leads the software services team in the UK and Ireland for the IBM social programme management solution, Cúram Software. Cúram is a business and technology solution that delivers prebuilt social programme functionality and business processes for social enterprises globally, including health and human services, workforce services and social security organisations.

Working for Cúram Software since 2004, Raponi joined IBM following the acquisition of the company. Prior to working with Cúram, Raponi worked within the IT consulting industry, including such roles as Technical Director for Synapse, a consultancy specialised in the pharmaceutical and healthcare industries, and Principle Consultant for Price Waterhouse and PricewaterhouseCoopers.

Raponi has a proven track record leading the delivery of social welfare solutions, including a large new benefit delivery system for the UK government, child services for Germany and workers' compensation for industrial injuries and diseases in Canada. He has extensive experience considering the issues faced by social welfare organisations and determining appropriate solutions, defining the implementation methodology for solutions and leading significant multidisciplinary and multigeography teams of more than 160 people to deliver the solutions on time and within budget.



June Thomson
UK and Ireland (UKI) Healthcare Leader

Thomson and her team aim to deliver higher value solutions into the UKI healthcare sector. Prior to her current role, Thomson was Sales Director within the IBM Global Business Partner Organisation. Since January 2009 she has led a team of around 30 people responsible for delivering challenging business growth objectives. Thomson's team manages and develops long-term business partner relationships, resulting in increased revenue, profitability and customer satisfaction for IBM and its business partners.

Prior to this, Thomson was the Director of Public Sector for the IBM Systems and Technology Group, during which her team grew IBM's business significantly. This role included sales to Consultants and Systems Integrators who were active in the public sector.

Thomson has worked for IBM for more than 20 years in a variety of roles. After a stint in engineering at Greenock Manufacturing followed by product development at Hursley Development Lab, Thomson transferred to a public sector sales role in 1996 and during the next nine years was the Client Relationship Executive for a variety of IBM government customers, including the Civil Aviation Authority, Royal Mail Group and the NHS. In addition, she was the Global Client Relationship Executive for GlaxoSmithKline between 2000 and 2002.

Thomson originates from Glasgow and holds a BSc (hons) degree in chemistry and an MPhil in production management and manufacturing technology. She has a diploma in education and is a qualified chemistry teacher.

Since joining IBM, Thomson has been actively involved in external programmes that promote science, engineering and technology as career options for girls. She is a member of the IBM UK Women's Leadership Team responsible for the development and execution of the gender diversity agenda for IBM in the UK.



Melanie Polkosky, Ph.D.
IBM Research,
Social Cognitive Psychologist

Polkosky is a human factors psychologist who uses what she knows about human behaviour to make technology easier and more pleasant to use. Her eclectic career path spans 20 years, 13 of which have been with IBM. Her experience in the fields of technology, education, clinical healthcare and the arts gives her a unique, highly intuitive understanding of people. Polkosky has been recognised as a leader in the field of human-computer interaction using speech technologies, and her research defining usability is widely used in the industry.

In addition to speech user experience design, Polkosky has experience in design and usability measurement that includes desktop, web and mobile interfaces. She is highly skilled at analytics (behavioural measurement and statistics), as well as applying psychological and communication research in novel ways to solve everyday client problems. She has been certified at IBM's highest level in the consultancy profession, Thought Leader Consultant.

Polkosky brings a unique perspective to her work in creative strategy and business case development, cross-channel user experience design, perceptual measurement and human social-cognitive behaviour. She is highly skilled at writing and speaking for executive, technical and layperson audiences, having published widely in popular media and peer-reviewed academic journals.

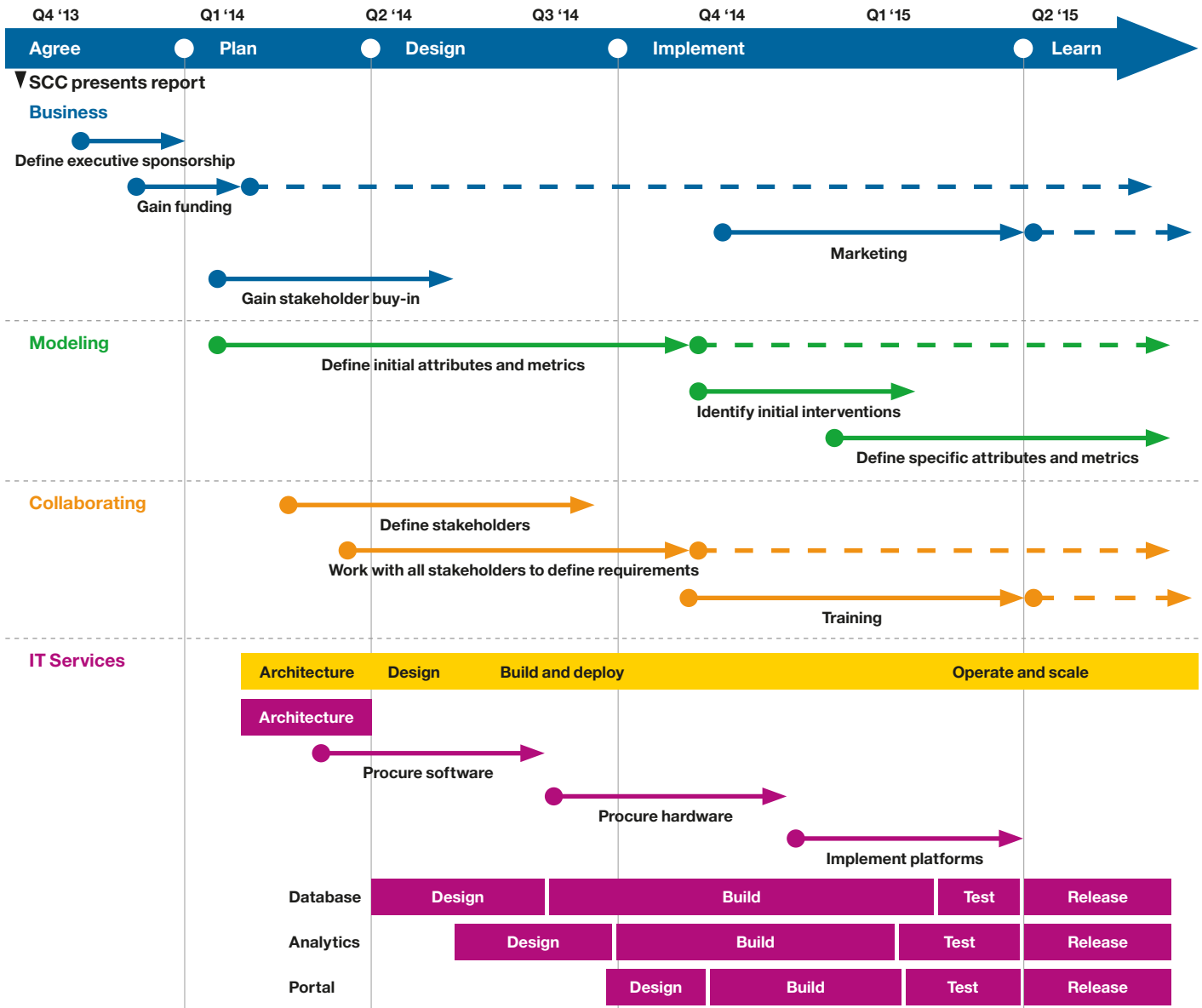
C. Sample high-level roadmap

Sample roadmap

The diagram provides a single-page view of a potential timeline for the delivery of the recommendations. The exact timings and sizing of each step will require detailed analysis as documented in the “Planning” section (see page 14). BCC must make critical decisions on the outsourcing (or insourcing) of the delivery and hosting responsibility to determine the timelines for the IT solution.

An important implication that should be taken from the plan above is that, given a hard go-live date, activities need to commence quickly in order to reduce cost and risk.

Commencing the new community planning responsibilities in the absence of implementing these recommendations will not only reduce the quality of decision making and assessment of the success of the first programmes but also may make the transition to the new processes more difficult for all involved and may reduce BCC’s ability to mandate their use.



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