

2.

SUSTAINABILITY FILTER

How do we create better cities – ones that are liveable, just, prosperous, resilient, healthy, and support quality of life for all within the Earth’s ecological means? This filter provides a guide for local governments to analyze Sharing Economy activities in order to identify those that foster more sustainable cities.

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Defining Sustainability

2.1 WHAT IS SUSTAINABILITY?

Sustainability is advancing quality of life for all equitably while living within ecological means. Advancing sustainability has been on the international agenda for decades as a dynamic process of advancing human and ecological wellbeing in ways that are green, prosperous, healthy and just.¹ Sustainability is rooted in a whole systems approach, which requires a broader and more integrated way of meeting social, ecological, economic and cultural needs within a longer-term, inclusive perspective. It is about equity now and intergenerational equity into the future. It is an ideal toward which humanity is striving, and a mindset – a way of perceiving our world and the systems within which we are embedded.

Through a sustainability lens, we see cities differently. Their physical borders no longer bind them but rather include all supporting external systems and resources.² In our global economy, this means that cities are dependent on productive land, often on foreign shores, to both meet the needs of their inhabitants and to receive their waste streams.

Cities are also hubs of cultural activity and economic innovation influenced by, and influencing, those outside their jurisdictional boundaries. Advancing urban sustainability is by definition a global endeavour and increasingly city governments are collaborating together in networks such as the Urban Sustainability Directors Network and C40 Cities Climate Leadership Group in order to “accelerate effective urban sustainability at scale.”³

An example of collaboration among cities and other partners is the STAR Communities Rating System built by and for cities and local communities across North America as a certification program to recognize sustainable communities.⁴ STAR is an acronym for Sustainability Tools for Assessing and Rating communities. The Rating System notes that cities advance sustainability for a variety of reasons including to:

- **Demonstrate commitment** to local sustainability;
- **Receive national recognition** for leadership and achievements;
- **Gain competitive advantage** and attract funding;
- **Improve transparency** and accountability and showcase results;
- **Communicate resilience and risk management** to municipal bond agencies; and
- **Build and strengthen partnerships** within government and with community

The STAR Community Rating System is an evaluation guide for cities interested in advancing sustainability outcomes. In this Chapter, we draw on STAR and other sustainability frameworks to develop a filter with six areas of consideration for analyzing Sharing Economy activities.

“The path to sustainability is different for every community – but the common elements are a healthy environment, a strong economy and the well-being of the people living in the community. When sustainability areas are addressed in tandem with each

other, they have a powerful, positive effect on the quality of life and future of a community. By overlapping work in these areas, efficiencies emerge and better results are achieved. It's an approach that solves local problems while being innovative about progress."

- STAR Community Rating System -
Version 1.2 - March 2015

2.2 WHY SUSTAINABILITY?

There are three key reasons for this sustainability filter:

- 1) to align with local government priorities;
- 2) to take action on global trends that demand urgent responses; and
- 3) to respond to a growing interest in viewing the Sharing Economy from a sustainability perspective.⁵

Alignment with Local Government Interest

The main audience and Advisory Committee for this Roadmap are city staff who are part of the Urban Sustainability Directors Network (USDN). USDN member cities highlight different aspects of sustainability depending on their priorities such as affordability, economic development or waste reduction. Yet all are doing so within a broader, systemic concept of sustainability. This is reflected in the formation of the new USDN User Group on Sustainable Consumption and expressed in the 2015 Eugene Memorandum on the role of cities in advancing sustainable consumption, which includes a number of USDN members as signatories.⁶ The sustainability filter is a response to this interest and alignment.

"The sustainable city – once an idea, an aspiration, an imperative, a challenge – is taking shape as a remarkably broad set of practices, policies, technologies, tools, programs, performance standards,

and organizational models that are spreading throughout North America's cities, large and small, old and new, coastal and interior."

- Pete Plasterik with Julia Parzen, **Toward a Sustainable City: The State of Innovation in Urban Sustainability**, September 2013.

Global Trends

The scope and urgency of our integrated social, economic and environmental problems also provide impetus for analyzing Sharing Economy activities through a sustainability filter. Globally, we are facing growing and interconnected challenges including resource constraints, ecosystem degradation, growing social inequality, financial uncertainty, and increasing climate variability. These complex, global challenges require a reassessment of conventional solutions which are not enough to reverse the scale and depth of the problems. We must not simply address symptoms but rather act upon underlying forces and dynamics – such as recognizing that highly unequal societies are less sustainable and that continuous growth in material and energy consumption is fundamentally at odds with the constraints of a finite Planet.⁷

Is the Sharing Economy advancing sustainability?

Local governments are also confronting the fact that the rapid expansion of the Sharing Economy does not always advance the public interest. As Demailly and Novel note in their report on the Sharing Economy: "Sharing is not sustainable by nature,; make it sustainable."⁸ This filter is designed to help cities that are pursuing sustainability to identify which activities to encourage and which ones are possible causes for concern.

Sustainability Filter

2.3 TIPS ON HOW TO USE THE FILTER

The sustainability filter serves to support local governments interested in advancing sustainability as they make decisions about how to engage with different Sharing Economy activities and actors. There are six areas of consideration covering environmental, social, and economic

dimensions of sustainability that can help cities prioritize their engagement. Each area has a main question and three sub-questions.

When using this filter:

- Consider the sustainability questions in an integrated way in order to find opportunities for advancing multiple objectives and achieving synergistic benefits;
- Make use of cost-benefit analysis and other tools for assessing trade-offs amongst different priorities;⁹ and
- Use terms and approaches that align with city priorities and interests.

Additional recommendations on strategic approaches to the Sharing Economy can be found in Chapter 6.

“Sustainability is most usefully regarded as a guiding principle, rather than a specific set of ideas applied in a single area such as environmental policy. The essence of sustainability thinking is to recognize that there are assets, costs and benefits not accounted for in market decisions and values. Sustainability looks to the public interest beyond narrow market outcomes, taking a wide view across sectors and peering across time with a long view.”

– External Advisory Committee on Cities and Communities – June 2006 – From Restless Communities to Resilient Places: Building a Stronger Future for all Canadians

Even though we advocate for an integrated and comprehensive approach to sustainability, city priorities differ from place to place depending on political cycles and community needs. Our suggestion is for local governments to align their decision-making according to their city's most pressing goals or priorities. If a city is focused on overcoming isolation among its residents then Sharing Economy activities that promote social connection can be prioritized. However, if addressing economic downturn is paramount, then Sharing Economy activities that promote affordable living and create quality jobs can instead be favoured by local government.

2.4 SIX SUSTAINABILITY CONSIDERATIONS

The sustainability considerations of Sharing Economy activities can be examined by local government by using a set of six guiding questions and related sub-questions as outlined in Table 2.1.

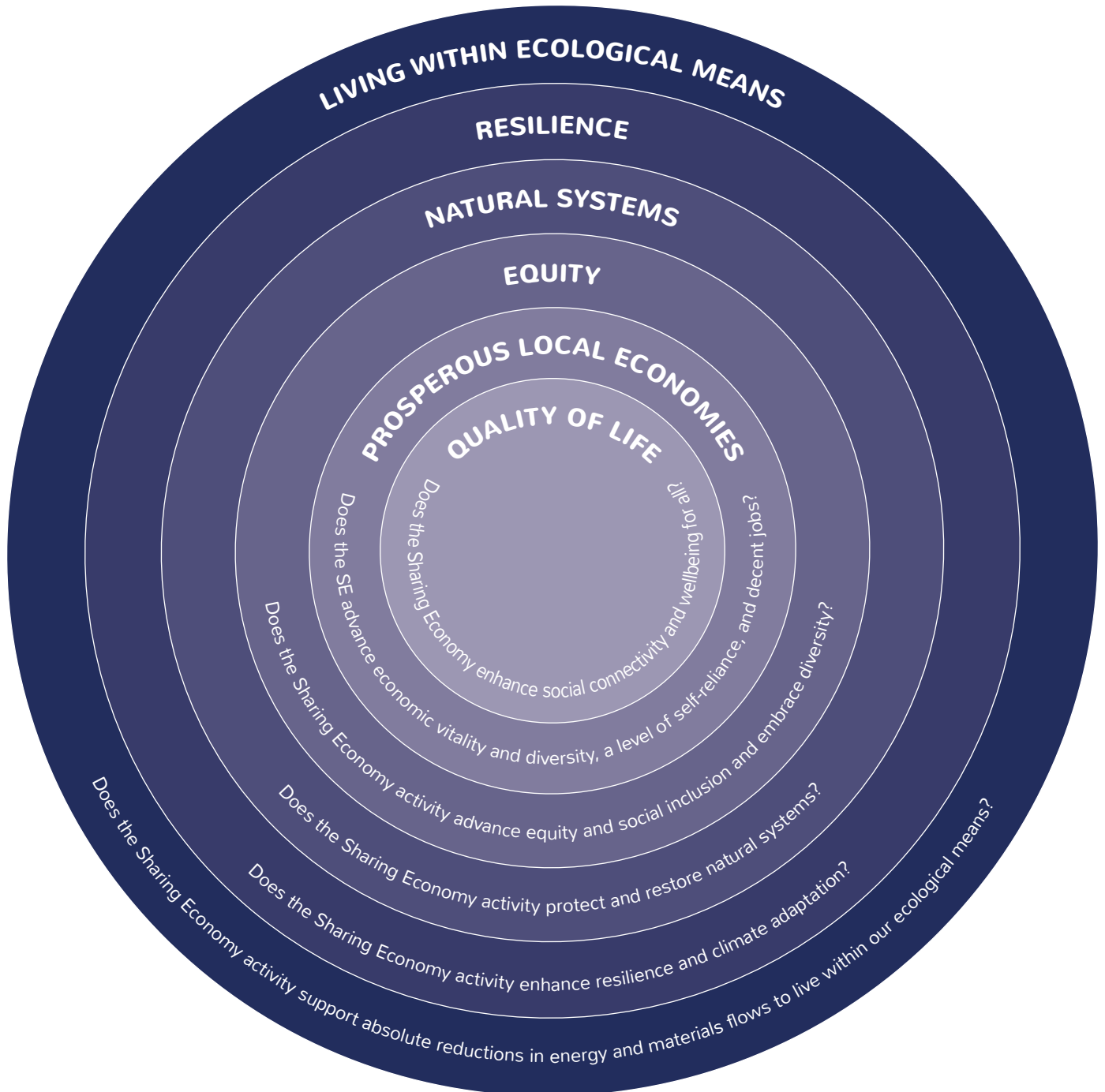


Table 2.1
SUSTAINABILITY FILTER: GUIDING QUESTIONS

KEY QUESTION	SUB-QUESTIONS
<p>1. LIVING WITHIN ECOLOGICAL MEANS</p> <p>Does the Sharing Economy activity support absolute reductions in energy and materials flows to live within our ecological means?</p>	<p>1a. EFFICIENCY GAINS Does the Sharing Economy activity reduce the quantity of material and energy flows?</p> <p>1b. ABSOLUTE REDUCTIONS Does the Sharing Economy activity enable absolute reductions in material and energy flows?</p> <p>1.c. ADDRESSES REBOUND Does the Sharing Economy activity enable reinvestment to further advance urban sustainability?</p>
<p>2. RESILIENCE</p> <p>Does the Sharing Economy activity enhance resilience and climate adaptation?</p>	<p>2a. INFRASTRUCTURE Does the Sharing Economy activity support infrastructure development and upgrades adapted to future climate change, emergencies and unanticipated events?</p> <p>2b. EMERGENCY PLANNING Does the Sharing Economy activity advance emergency planning and preparedness?</p> <p>2c. VULNERABILITY Does the Sharing Economy activity enable resilience for vulnerable constituencies in the face of emergencies, unanticipated events and climate adaptation?</p>
<p>3. NATURAL SYSTEMS</p> <p>Does the Sharing Economy activity protect and restore natural systems?</p>	<p>3a. NATURAL CAPITAL Does the Sharing Economy activity protect natural systems including air, water, soil, material resources, energy and food?</p> <p>3b. REDUCED TOXICITY Does the Sharing Economy activity reduce levels of toxicity and advance toxics-free solutions?</p> <p>3c. REGENERATIVE Does the Sharing Economy activity catalyze net positive gains in ecological integrity?</p>
<p>4. EQUITY</p> <p>Does the Sharing Economy activity advance equity and social inclusion and embrace diversity?</p>	<p>4a. ACCESS Can the Sharing Economy activity be accessed by lower-income persons and used as a means to improve standards of living?</p> <p>4b. EQUITABLE DISTRIBUTION Does the Sharing Economy activity contribute to more equitable distribution of economic value?</p> <p>4c. ENGAGEMENT Does the Sharing Economy activity build on a foundation of authentic community engagement and continue to diversify the Sharing Economy, create new partnerships, and expand the use of equity measures and support?</p>
<p>5. PROSPEROUS LOCAL ECONOMIES</p> <p>Does the Sharing Economy activity advance economic vitality and diversity, a level of self-reliance, and decent jobs?</p>	<p>5a. LOCAL ECONOMY Does the Sharing Economy activity strive toward local and regional self-reliance and take full advantage of, and nurture, local / regional food production, economy, power production and many other activities that sustain and support their populations?</p> <p>5b. DECENT JOBS Does the Sharing Economy activity reduce unemployment? Does it provide jobs whose wages and labour practices support decent livelihoods?</p> <p>5c. ECONOMIC DIVERSITY Is there a diversity of sharing economy entities so that there is a healthy level of competition?</p>
<p>6. QUALITY OF LIFE</p> <p>Does the Sharing Economy activity advance social connectivity and wellbeing for all?</p>	<p>6a. SOCIAL CONNECTIONS Does the Sharing Economy activity enhance social connectivity?</p> <p>6b. LIFESTYLES Does the Sharing Economy activity facilitate healthier, sustainable lifestyles and a higher quality of life within liveable communities?</p> <p>6c. WELLBEING Does the Sharing Economy activity advance wellbeing for individuals and their communities?</p>

The following provide some further detail on each of the six areas of the sustainability filter, including sample metrics that cities are already using to measure impacts.

1. LIVING WITHIN ECOLOGICAL MEANS DOES THE SHARING ECONOMY ACTIVITY SUPPORT ABSOLUTE REDUCTIONS IN ENERGY AND MATERIALS FLOWS TO LIVE WITHIN OUR ECOLOGICAL MEANS?

Sub- questions:

1A. EFFICIENCY GAINS

DOES THE SHARING ECONOMY ACTIVITY
REDUCE THE QUANTITY OF MATERIAL AND
ENERGY FLOWS?

1B. ABSOLUTE REDUCTIONS

DOES THE SHARING ECONOMY ACTIVITY
ENABLE ABSOLUTE REDUCTIONS IN MATERIAL
AND ENERGY FLOWS?

1C. ADDRESSES REBOUND

DOES THE SHARING ECONOMY ACTIVITY
ENABLE REINVESTMENT IN ADVANCING
FURTHER URBAN SUSTAINABILITY?

Although cities occupy 3% of the Earth's surface, they house half of the Earth's population and use 60-80% of global energy consumption and 75% of the world's carbon emissions and of natural resource use.¹⁰ The current consumption of resources including materials and energy and production of waste is 1.5 times what the Earth's living systems can sustain.¹¹ As Timothy Beatley outlines in his work on green cities, "cities that strive to live within ecological limits, fundamentally reduce their ecological footprints, and acknowledge their connections with and impacts on other cities and communities and the larger planet."¹² The STAR Community Rating System identifies 'living within ecological means' as a characteristic of a sustainable community defined as follows:

"Sustainable communities steward natural resources so that future generations have as many opportunities available to them as we do today. They also recognize

*that resources exist for the benefit of life forms other than humans. Local governments in these communities assess resources, track impacts, and take corrective action when needed so that they meet the needs of today without depleting what they leave for future generations."*¹³

Cities committed to the necessary scale of change are already emerging, including the March 2015 launch of the Carbon Neutral Cities Alliance. The Alliance's 17 member cities aim to reduce greenhouse gas (GHG) emissions by at least 80 percent by 2050 or sooner – the most ambitious GHG emission reduction targets undertaken by any cities across the globe.¹⁴ Other promising solutions focus on: life-cycle or 'circular economy' approaches; waste minimization and prevention through reducing the demand for raw materials at source; product design for reuse and long-lasting durability; and the cultivation of a culture of sufficiency.

Reductions in material and energy flows can be supported through efficiency gains by using less material and energy per good produced. Yet, technological advances are not sufficient, particularly because efficiency gains are offset by growing human demand which contributes to a 'rebound effect'. As the 2015 USDN report on Sustainable Consumption and Cities notes:

*"When a person saves money through a sustainable consumption activity, what happens to those cost savings? Do they remain in savings, or is it spent on more of the product (e.g., buy more used clothing) or on a different product or service (e.g., cell phone, food, or entertainment)? Services are generally expected to have lower impacts than products, but where do the savings go and how do the impacts compare?"*¹⁵

The 'rebound effect' occurs when benefits from a sustainable improvement are undermined by new problems that emerge from the improvement itself.¹⁶ An example is increased driving as a result of cars and roads becoming better, cheaper and more widely available. MIT Professor John Sterman provides another example:

“Sustainability programs are subject to similar rebound effects: reducing the waste and energy embedded in a product lowers costs and prices, stimulating demand for the more efficient product (the direct rebound effect) and increasing people’s disposable income, so that overall consumption rises (the indirect rebound effect). Population growth, rising incomes and consumption per capita and rebound effects can overwhelm even large improvements in ecoefficiency.”¹⁷

Because of the rebound effect, the challenge is to not only use less natural resources but also to reduce in absolute terms the quantity of material and energy flows and waste throughout the economy. The International Energy Agency emphasizes that absolute reductions are needed in overall demand for energy in order to support a transition to renewable energy.¹⁸ A 2011 report of the International Resource Panel (IRP) confirmed that ‘absolute decoupling’ – achieving greater wellbeing with the same or fewer resources and fewer negative environmental impacts – is possible but hardly happens because available policy approaches and technologies remain untapped.¹⁹ This 2011 report and a 2013 IRP report on City-Level Decoupling highlights the key role that cities play in contributing to absolute reductions because they serve as “societal ‘nodes’ in which much of the current unsustainable use of natural resources is socially and institutionally embedded - but also as centers for knowledge, financial, social and institutional resources, where the greatest potential exists for sustainability-

oriented innovations.”²⁰ Harnessing the potential of cities requires targeted reinvestment of any financial or efficiency gains into further sustainability efforts rather than increased consumption. This Roadmap asks cities to consider absolute reductions and reinvestment when taking action and engaging with Sharing Economy activities.

Sample metrics for ‘Living within Ecological Means’ from the STAR Community Rating System:²¹

- Climate and Energy – Waste Minimization – Total Solid Waste – Demonstrate incremental progress towards achieving a 100% reduction by 2050 in total solid waste generated within the jurisdiction that is disposed of via landfill, waste-to-energy facility, or incinerator.²²
- Climate and Energy – Resource Efficient Buildings – Energy Efficiency – Demonstrate incremental progress towards achieving an 80% reduction by 2050 in the energy use intensity of the community’s building stock.²³
- Natural Systems – Green Infrastructure – Facility and Infrastructure Improvements – Increase the percentage of funding invested in green infrastructure.²⁴

2. RESILIENCE

DOES THE SHARING ECONOMY ACTIVITY ENHANCE RESILIENCE AND CLIMATE ADAPTATION?

Sub- questions:

2A. INFRASTRUCTURE

DOES THE SHARING ECONOMY ACTIVITY SUPPORT INFRASTRUCTURE DEVELOPMENT AND UPGRADES THAT ARE ADAPTED TO FUTURE CLIMATE CHANGE AND OTHER EXTREME EVENTS?

2B. EMERGENCY PLANNING

DOES THE SHARING ECONOMY ACTIVITY ADVANCE EMERGENCY PLANNING AND PREPAREDNESS?

2C. VULNERABILITY

DOES THE SHARING ECONOMY ACTIVITY ENABLE RESILIENCE FOR VULNERABLE CONSTITUENCIES IN THE FACE OF EMERGENCIES, UNANTICIPATED EVENTS AND CLIMATE ADAPTATION?

Cities are faced with complex challenges that require them to be resilient and cope with unprecedented change. Resilience is the capacity to anticipate and respond to risks and sudden shocks as well as to adapt to new knowledge, changed circumstances, and external challenges including climate change, geopolitical unrest and economic crises. Resilience is not just bouncing back from disturbance but 'bouncing forward' – using disruptions as an opportunity for improvement – to create more just, sustainable and liveable communities.²⁵ For example, Greensburg Kansas rebuilt their town after a tornado with upgraded public buildings of a LEED Platinum standard, decentralized wind power, and a walkable town centre.²⁶ In 2013, the Rockefeller Foundation launched the 100 Resilient Cities initiative to support cities - including Boston, Montréal, Chicago, and New Orleans - committed to building their capacity to navigate challenges and transform disruptions and catastrophes into opportunities.²⁷ The 100 Resilient Cities initiative views resilience as the ability of cities to respond to “not just the shocks – earthquakes, fires, floods, etc. – but also the stresses that weaken the fabric of a city on a day to day or cyclical basis” including high unemployment, inefficient transportation systems, violence, and food and water shortages.²⁸

The STAR Community Rating System notes that sustainable communities “instill resiliency” defined as:

“Sustainable communities possess a strong capacity to respond to and bounce back from adversity. Local governments in these communities prepare for and help residents and institutions prepare for disruptions and respond to them swiftly, creatively and effectively.”²⁹

Typically, building urban resilience is about buffering cities from change and is focused on protecting infrastructure, emergency preparedness and risk management. However, urban resilience can also be defined in broader terms. There is a growing emphasis on building 'adaptive capacity' in order to generate solutions and creatively reorganize while preserving valuable assets and relationships.³⁰ It is about “the capacity of a city’s economic, social, political and physical

infrastructure systems to absorb shocks and stresses and still retain their basic function and structure.”³¹ Urban resilience is about ensuring social, cultural, community and economic resilience.

The section below on prosperous, local economies emphasizes economic diversity and increased local self-reliance as a means to foster resilience. This is supported by the findings of the International Resource Panel report on cities, which recommends strengthening economic resilience “by reducing dependence on carbon intensive growth, stimulating efficiency in resource use, expanding skills for work in the green economy.”³² Principles for resilience also include designing for diversity, redundancy, modularity and independence of systems components, and feedback sensitivity,³³ combined with collaborative governance systems and asset management.³⁴

Cities are incorporating resilience into their emergency preparedness and climate adaptation plans. For example, the City of Denver’s Climate Adaptation Plan (2014) states: “A resilient community will be able to enjoy economic opportunity, parks, open spaces, recreational activities, and an environment conducive to support resident’s health and well being” and has the following goals:

- Reduce vulnerability to building energy supply disruptions
- Reduce vulnerability of buildings to extreme weather
- Safeguard health of Denver residents in the context of climate impacts
- Improve mobility within the City and its communities
- Prepare and enable urban infrastructure to adapt to climate impacts
- Increase food security

Similarly, the vision of a 'healthy and resilient' City of Portland in its Climate Action Plan is one in which “the region’s buildings, infrastructure, and natural and human systems are prepared to recover quickly from changing climate such as flooding, landslides and heatwaves.”

The resilience strategies of the City of Calgary Emergency Management Agency were put to the test during the 2013 Southern Alberta floods. [35] An independent review by the Conference Board of Canada confirmed a highly effective emergency response by the City because of factors including “learning lessons from previous disasters;

investing in emergency preparedness; and having a good grasp of communications and social media use, a unified leadership, and a strong sense of community.”³⁶ The emergency response strategies also supported local businesses in developing and successfully implementing their own contingency plans through a partnership between CEMA and the Chamber of Commerce.³⁷ Augmenting private sector preparedness and developing a comprehensive volunteer framework were cited as areas for improvement.

There is growing evidence that social connectivity and strong social ties are very important to more resilient cities and communities. Research on disaster recovery in Japan after an earthquake, in New Orleans after Hurricane Katrina, and in Chicago in terms of emergency preparedness highlights the critical role that social capital and neighbourhood connectivity can play to enhance social resilience.³⁸

Julian Agyeman, Professor at Tufts University, is finding that social connectivity and resilience is already present among many vulnerable populations. “Those who have fewer resources – and more sharing – have more social contacts with their neighbours and within their community, and those with more resources have less.”³⁹ These social ties can be supported by cities. In addition, urban resilience strategies need to recognize that sudden disruptions and stresses can have a disproportionate impact on vulnerable people, thus requiring a greater commitment to social equity. A May 2015 report by the Kresge Foundation and Island Press outlines some promising strategies, including: building on the strengths of low-income communities; supporting efforts spearheaded by local community groups; and advancing solutions to multiple challenges such as energy efficiency for housing affordability and public health. The report also highlights that resilience is about living within planetary limits in order “to avoid further destabilizing natural systems.”⁴⁰

Sample metrics for ‘Resilience’ from the STAR Community Rating System:⁴¹

- Climate and Energy – Climate Adaptation – Vulnerability Reduction – Demonstrate a measurable reduction in vulnerability in each of the 4 core areas (Built Environment, Economic Environment, Natural Environment, Social Environment) identified locally⁴²

- Climate and Energy – Greening the Energy Supply – Electrical Energy Supply – Demonstrate that the community receives a portion of its overall energy supply from renewable energy sources⁴³
- Health & Safety – Emergency Prevention & Response – Plan Development – Adopt a local comprehensive plan for emergency response that include provisions for evacuating low-income, disabled, and other persons likely to need assistance⁴⁴

3. NATURAL RESOURCES

DOES THE SHARING ECONOMY ACTIVITY PROTECT AND RESTORE NATURAL SYSTEMS?

Sub-questions:

3A. NATURAL CAPITAL

DOES THE SHARING ECONOMY ACTIVITY PROTECT NATURAL SYSTEMS INCLUDING AIR, WATER, SOIL, MATERIAL RESOURCES, ENERGY AND FOOD?

3B. REDUCED TOXICITY

DOES THE SHARING ECONOMY ACTIVITY REDUCE LEVELS OF TOXICITY AND ADVANCE TOXICS-FREE SOLUTIONS?

3C. REGENERATIVE

DOES THE SHARING ECONOMY ACTIVITY CATALYZE NET POSITIVE GAINS IN ECOLOGICAL INTEGRITY?

Humans are one species in the web of life. We are an integral part of the Earth’s ecosystem and draw benefits from its ecological services. We depend on the Earth for provisioning services such as food, medicine, fuel and water; regulating services such as flood protection, pollination and climate regulation; cultural services such as recreational, aesthetic and spiritual benefits; and habitat or supporting services such as photosynthesis, soil formation, nutrient cycling and maintenance of genetic diversity.⁴⁵

The Millennium Ecosystem Assessment Report provides detailed evidence of how humans have changed ecosystems in unprecedented and rapid ways in the past 50 years. Although this change has contributed to gains in human

wellbeing, “approximately 60% (15 out of the 24) of the ecosystem services evaluated in this assessment are being degraded or used unsustainably.”⁴⁶ The impact on human wellbeing is significant, particularly for poor and vulnerable populations, and there is a greater likelihood of nonlinear, and possibly irreversible, changes in ecosystems. What is the role of cities in protecting natural systems, reducing toxicity and pollution, and restoring ecosystem services?

Cities are dense urban settlements whose concentration of population and economic activity provides increased opportunities for sustainability actions when compared to lower-density living. However, current urbanization practices are placing an unsustainable load on supportive ecosystems inside and outside their boundaries. This results in biodiversity loss, land and water degradation, nutrient loading, greenhouse gas accumulation and fisheries collapse. As noted in the section above on ‘Living Within Ecological Means’, the human enterprise is exploiting the global ecosystem at rates that surpass its regenerative capacity.. As urban populations grow, we use more and more resources and produce more and more waste.. William E. Rees, Professor Emeritus at the University of British Columbia and founder of ecological footprint analysis, underscores that city-dwellers are not acknowledging their inherently unsustainable parasitic relationship with the Earth. He writes:

“Cities increasingly define the human ecological niche. They comprise the major habitat of the dominant species on the planet and make unmatched biophysical demands on the ecosphere. In short, cities have become a critical structural, functional and spatial expression of human ecological reality. It is the more remarkable, therefore, that the very concept of cities as ecological entities remains below most people’s cognitive radar... Thus, while the ecosphere evolves and maintains

itself by ‘feeding’ on an extra-terrestrial source of energy, and by continuously recycling matter, cities grow and maintain themselves by ‘feeding’ on the rest of the ecosphere and ejecting their wastes back into it....In short, humans are de-structuring and dissipating critical resource ecosystems, polluting most others, and disrupting life-support functions essential to our own survival.”⁴⁷

Rees recommends a number of approaches to address this problem including:

- Explicitly treating cities as ecosystems;
- Consolidating the city’s eco-footprint within the natural eco-region surrounding the urban core;
- Densifying the urban core;
- Creating redundancy in terms of food, energy and water sources; and
- Shifting from a resource-depleting system to a “self-sustaining circular flows ecosystem. For example, animal and human domestic wastes would be treated and recycled on the eco-region’s farm-and forest lands, improving soil quality, reducing the need for artificial fertilizers, and simultaneously reducing ground and surface water contamination.”⁴⁸

There is a growing understanding about the nature and value of ecological services⁴⁹ and, according to the International Resource Panel, cities can “harness the benefits of natural systems.”⁵⁰ Cities are already protecting their rural areas from urban expansion, which are rich in both resources and natural assets. Examples include the Ontario greenbelt and Metro Vancouver’s Agricultural Land Reserve.⁵¹ The natural health of a city is also determined by levels of toxins, including air and water pollution. The World Health Organization analyzes air quality globally and in 2014 identified Whitehorse in the Yukon, Santa Fe, New Mexico and Honolulu, Hawaii as having some of the cleanest air because of city policies including strict regulations on emissions and public transit.⁵²

The concept and practice of biomimicry – design that is inspired by the form and functions of nature – is being applied at the city scale.⁵³ Biomimicry 3.8 founder Janine Benyus believes biomimicry methods can increase the resilience and livability of cities: “if you were to actually make a city that functioned like the native ecosystem next door, it would produce ecosystem services.”⁵⁴ Biomimicry 3.8 is partnering with design firm HOK to design from scratch an industrial city of 2 million people in India with nature’s design principles at its core.⁵⁵ One group in the Puget Sound Area is trying this practice in Seattle. The Seattle Urban Greenprint project is identifying strategies from nature to support carbon flows, biodiversity and water flows in the city and connecting community partners and efforts to re-establish healthy ecosystem functions.⁵⁶

There are also efforts to define an ‘eco-city.’ The non-profit, EcoCity Builders, is leading an effort with partners to implement their International EcoCity Framework and Standards. This includes creating specifications on bio-geo-physical conditions such as clean air and healthy soil, as well as ecological imperatives such as healthy biodiversity and ecological integrity.⁵⁷

As cities explore what they can do to get ahead of the curve, the opportunity is to not only ‘do less harm’ but to rebuild natural systems through regenerative development and design.⁵⁸ This approach is more than ecosystem restoration or renewal – it is also rooted in the story of a place and the science of living systems.⁵⁹ Regenerative sustainability is not a one-time intervention but includes building community capability to adapt over time.⁶⁰ What does this mean in practice? One aspect is reinvestment. Rees recommends using revenues gained from other sustainability programs, such as carbon taxes, to “invest in rebuilding local / regional natural capital stocks (e.g. fisheries, forests, soils, biodiversity reserves, etc.) that have been traded away.”⁶¹ Another aspect is a shared vision of regeneration. For example, the community of Willow Springs in Pinal County Arizona created a guiding vision statement to “increase the vitality of the land and support its continuing evolution” with the aim of developing in a way that simultaneously enhances community and ecosystem health.⁶²

Sample metrics for ‘Natural Resources’ from the STAR Community Rating System:⁶³

- Natural Systems – Natural Resource Restoration – Restoration – Reduce the difference between the actual acreage restored and targeted acreage established in the natural systems plan or land conservation plan⁶⁴
- Natural Systems – Outdoor Air Quality – Concentration and Emissions – Achieve attainment or maintenance status for all measured criteria pollutants⁶⁵
- Natural Systems – Water in the Environment – Chemical Integrity – Pollutants – Demonstrate pollutant loadings below Total Maximum Daily Load (TMDL) level⁶⁶

4. EQUITY

DOES THE SHARING ECONOMY ACTIVITY ADVANCE EQUITY AND EMBRACE DIVERSITY?

Sub-questions:

4A. ACCESS

CAN THE SHARING ECONOMY ACTIVITY BE ACCESSED BY LOWER-INCOME PERSONS AND USED AS A MEANS TO IMPROVE STANDARDS OF LIVING? DOES THE SHARING ECONOMY SUPPORT CAPACITY BUILDING?

4B. EQUITABLE DISTRIBUTION

DOES THE SHARING ECONOMY ACTIVITY CONTRIBUTE TO MORE EQUITABLE DISTRIBUTION OF ECONOMIC VALUE?

4C. ENGAGEMENT

DOES THE SHARING ECONOMY ACTIVITY BUILD ON A FOUNDATION OF AUTHENTIC COMMUNITY ENGAGEMENT AND CONTINUE TO DIVERSIFY THE SHARING ECONOMY, CREATE NEW PARTNERSHIPS, AND EXPAND THE USE OF EQUITY MEASURES AND SUPPORT?

People live in cities in part because they are centres for development and provide access to services such as education, employment, and health care. However, these services and goods are typically not equally accessible or equitably distributed among city inhabitants. As the STAR Communities Framework outlines, a characteristic of a sustainable community is that it “ensures equity” which includes allocating resources and opportunities fairly. This requires that local governments actively eliminate barriers to full participation in community life and work to correct past injustices.⁶⁷

This roadmap explores opportunities and challenges for local governments to advance equity in Chapter 6. A commitment to equity is a commitment to building the capacity of communities, to sharing power, to preventing regressive impacts on vulnerable populations, and to ensuring fair sharing of, and access to, the world's ecological and economic output and value. Cities have a central role to play in reversing growing inequality. The relatively wealthy are consuming far more than their share, while others are left without the basics. In fact, total net increases in national wealth in Canada, the US and globally are being captured by the already affluent.⁶⁸ There is evidence that social equity and more equitable distribution of resources is "better for everyone"⁶⁹ resulting in, for example, improved community health and less unproductive status competition. This roadmap explores opportunities for increasing equity through Sharing Economy activities.⁷⁰

In a 2013 Urban Sustainability Directors Network review of the state of innovation, authors Pete Plastrik with Julia Parzen note that urban sustainability is "dramatically morphing" from a focus on environmental issues to adding new concerns including equity. According to USDN member Jennifer Green from the City of Burlington, a focus on equity is "where sustainability is heading" and she notes the following:

"A key trend is the emphasis on diversity, access and equity. Sustainability and greening cities will be about equity and diversity and ensuring that all people are part of the dialog and empowered to make change."

The City of Austin focuses on "promoting prosperity for all" and "tackling the ethnic divide" as key parts of its 2012 Comprehensive Plan,⁷¹ and Portland and Seattle are "enhancing equity through climate action" through their Climate Action Plans.⁷² The City of Calgary 2020 Sustainability Direction highlights equity too in the following goal:

"Calgary maintains and champions each person's right to a sustainable life and a sustainable environment in which to live. Diversity is valued"

and all voices are considered in the decision-making process. Factors such as language, age, race, culture, gender, sexual orientation, time, finances, ability, knowledge and health are not barriers to publicly provided goods and services. Each decision results in the most effective and fair method of achieving mutually beneficial objectives. All decision-making enhances the value, vitality and sustainability of human and natural systems in both the present and future."⁷³

The USDN's Working Group on Social Equity defines social equity as "fair access to basic environmental health and safety, opportunities for livelihood and economic wellbeing; educational, social and environmental resources; full participation in the political and cultural life of the community; and self-determination in meeting fundamental needs and achieving one's full potential."⁷⁴ Strong interest in this topic among USDN city members has led to a number of activities including a social equity workshop and sessions at the USDN annual meeting in 2013, Innovation Fund proposal area of interest in 2013, and allocated grants.⁷⁵ The USDN also commissioned a scan of equity practices by Angela Park, Executive Director and Founder of Mission Critical, who highlights a number of good practices within cities in terms of defining equity and incorporating equity into sustainability programming, innovative tools and lessons. These include:

- Integrating equity into framing and communication of sustainability;
- Using data, metrics, and analysis to set goals and build accountability for progress on equity;
- Building sustainability efforts on a foundation of community engagement, ongoing capacity building, and collaboration, including through strengthening community partnerships across sectors to accelerate progress on equity; and
- Expanding the capacity and infrastructure for equity in local government decision-making and operations such as through professional development opportunities.⁷⁶

The 2015 USDN Strategic Plan established ‘strengthening equity initiatives’ as a key short-term objective and encourages USDN members to build on the good practices outlined in the Equity scan and “to address equity as a foundational component of sustainability.”⁷⁷

Sample metrics for ‘Equity’ from the STAR Community Rating System:⁷⁸

- Education, Arts & Empowerment – Social & Cultural Diversity – Diverse Community Representation – Demonstrate that appointments to local advisory boards and commissions reflect the racial and ethnic diversity of the community⁷⁹
- Equity & Empowerment – Civil and Human Rights – Resolution of Complaints – Demonstrate that all civil and human rights complaints in the past 3 years have been investigated and violations redressed in a timely manner⁸⁰
- Equity & Empowerment – Environmental Justice – Policy and Code Adjustment – Incorporate environmental justice criteria and priorities into zoning, land use planning, permitting policies, and development of new projects⁸¹

5. PROSPEROUS LOCAL ECONOMY DOES THE SHARING ECONOMY ACTIVITY ADVANCE ECONOMIC VITALITY AND DIVERSITY, A LEVEL OF SELF-RELIANCE, AND DECENT JOBS?

Sub-questions:

5A. LOCAL ECONOMY

DOES THE SHARING ECONOMY ACTIVITY STRIVE TOWARD LOCAL AND REGIONAL SELF-RELIANCE AND TAKE FULL ADVANTAGE OF AND NURTURE LOCAL / REGIONAL FOOD PRODUCTION, ECONOMY, POWER PRODUCTION AND MANY OTHER ACTIVITIES THAT SUSTAIN AND SUPPORT THEIR POPULATIONS?

5B. DECENT JOBS

DOES THE SHARING ECONOMY ACTIVITY REDUCE UNEMPLOYMENT? DOES IT PROVIDE JOBS WHOSE WAGES AND LABOUR PRACTICES SUPPORT DECENT LIVELIHOODS?

5C. ECONOMIC DIVERSITY

IS THERE A DIVERSITY OF SHARING ECONOMY ENTITIES SO THAT THERE IS A HEALTHY LEVEL OF COMPETITION?

There are at least two ways of defining ‘sustainable economic development’ (SED) according to the 2015 SED toolkit developed by EcoNorthwest for the Urban Sustainability Directors Network.

“The broad view places economic development in the context of the overall well-being or quality of life of the people that economic development is trying to benefit....

The narrower view focuses on the economic prosperity component of quality of life. This view emphasizes job creation and, in turn, income generation as the primary path to economic prosperity and development.”

Departments of economic development within cities frequently take the narrower view for their own department as the broader view is advanced in collaboration with other departments and agencies, including health, transportation, and education. Economic development departments focus on business creation, growth and retainment with the aim of creating jobs and income for household economic wellbeing.

According to EcoNorthwest, local governments play a number of roles in attracting businesses and supporting their profitability including:

- Ensuring an adequate supply of developable land and built space;
- Investing in local infrastructure and services to support industrial, commercial and residential development;
- Supporting the development of an educated and skilled labour force through access to training and education, placemaking to make a region more attractive, and access to opportunities for diverse groups; and
- Providing effective regional branding and marketing to improve interactions with suppliers and consumers.⁸²

Integrating sustainability into economic development requires the simultaneous consideration of social, economic and environmental factors in an integrated way while adopting a longer time horizon for decision-making.⁸³ Prosperity in this context is about security of employment and market stability that both meets the needs of life, such as food and shelter, and also provides human services that improve our quality of life such as social care, education, recreation, natural and physical assets.⁸⁴ Promising approaches to sustainable economic development and prosperity include a level of re-localization, commitment to

decent jobs, and diversity of economic activity.

There are a number of reasons why re-localizing the economy and seeking greater self-reliance is strategic: cities experience

1. reduced vulnerability to global change including rising energy prices and to dependency on production of basic needs elsewhere;
2. greater affinity among city dwellers to a local economy; and
3. capacity to manage and adjust to 'surprises'.⁸⁵

It is important to note that localized economic activity does not replace international trade – there remains value in maintaining trade as a buffer for local shortages and as a provider of vital goods not produced in a community. However, there is a re-balancing that is critical in order to place a greater emphasis on local economic production rather than on global trade. Current global economic integration, specialization and restructuring reduces economic diversity and resilience, can de-value and de-skill a local population, and lead to local depletion of natural resources and increased pollution that increases risks globally.⁸⁶ Advancing urban sustainability is supported by an increase in economic self-reliance for essential resources such as food and energy, by strengthened domestic markets, and by diversification of economic activities.

In addition, a prosperous local economy requires a strong job market and skilled labour with jobs that support decent livelihoods within safe and healthy workplaces. In the context of sustainability, work is not just a 'livelihood' but as Jackson and Victor note "is also a vital ingredient in our connection to each other — part of the "glue" of society. Good work offers respect, motivation, fulfillment, involvement in community and, in the best case, a sense of meaning and purpose in life."⁸⁷ Sharing Economy activities can be assessed as to whether they provide decent work, or whether it is leading to "a 'gig economy' where skilled jobs are replaced with low-paid casual work."⁸⁸ As Juliet Schor writes, our assessment needs to be considered in light of the fact that this is "a period of high unemployment and rapid labor market restructuring" with eroding working conditions and protections, declining wages and decline in labor's share of national income in the US.⁸⁹ There is also evidence that labour conditions are worsening with certain

practices including not affording workers 'employee status', which reduces rights including minimum wage, benefits, and compensation from unfair dismissal.⁹⁰ According to Schor, labour conditions can be improved through sharing platforms by providing more employment alternatives and greater autonomy and allocation of income; however, Schor emphasizes the need to ensure decent jobs.

Sample metrics for 'Prosperous Local Economy' from the STAR Community Rating System:⁹¹

- Economy & Jobs – Business Retention & Development – Businesses – Demonstrate an increased number of business establishments in the municipality over time⁹²
- Economy & Jobs – Local Economy – Community Self-Reliance – Demonstrate that 50% of import sectors have increasing location quotients over the past 3 years⁹³
- Economy & Jobs – Quality Jobs & Living Wages – Education and Outreach – Support a Best Places to Work campaign to recognize local businesses that support employees and their families⁹⁴

6. QUALITY OF LIFE DOES THE SHARING ECONOMY ACTIVITY ADVANCE SOCIAL CONNECTIVITY AND WELLBEING FOR ALL?

Sub-questions:

6A. SOCIAL CONNECTIONS DOES THE SHARING ECONOMY ACTIVITY PROMOTE AND ENHANCE SOCIAL CONNECTIVITY?

6B. LIFESTYLES DOES THE SHARING ECONOMY ACTIVITY FACILITATE (AND ENCOURAGE) MORE HEALTHY, SUSTAINABLE LIFESTYLES AND HIGHER QUALITY OF LIFE WITHIN LIVEABLE COMMUNITIES?

6C. WELLBEING DOES THE SHARING ECONOMY ACTIVITY ADVANCE WELLBEING FOR INDIVIDUALS AND THEIR COMMUNITIES?

The ultimate aim of urban sustainability is to ensure quality of life and wellbeing for city inhabitants.⁹⁵ As mentioned in

the section above, in EcoNorthwest's Sustainable Economic Development Toolkit developed for the Urban Sustainability Directors Network, economic development more broadly defined is about improving wellbeing "not just through economic activity, but also through improvements in the wider social and natural environment that strengthen the economy."⁹⁶ Our understanding and evaluation of wellbeing is developing in significant ways and is revealing insights for urban design and policy.

What have we learned about measuring wellbeing? According to Italian economist and OECD statistician Enrico Giovannini, a useful distinction can be made between wellbeing and happiness.⁹⁷ Wellbeing is enabled through policies and context and can be measured objectively across specific domains including living standards, health, mental health, community vitality, cultural vitality, governance environmental quality, education, and work satisfaction. In contrast, happiness is measured subjectively using surveys in which people rank their level of experienced happiness, and supported by the development of 'happiness skills' such as compassion, sociability, altruism, kindness, and delayed gratification developed in religious traditions, positive psychology and neuro-science.⁹⁸ Generosity is key as there is growing evidence that people feel better off when they give to others⁹⁹ and there is some evidence that this may extend to sharing.¹⁰⁰

Assessments reveal that a key component of wellbeing is social connectivity and a feeling of belonging. The World Bank notes the "increasing evidence showing that social cohesion is critical for societies to prosper economically and for development to be sustainable. Social capital is not just the sum of the institutions which underpin a society – it is the glue that holds them together."¹⁰¹ People who experience a strong sense of belonging are healthier, learn better, feel an increased sense of purpose, improve social inclusion, participate in society and are more resilient to disruption.¹⁰²

Charles Montgomery, author of 'Happy City: Transforming our Lives through Urban Design', also highlights that people are happier when they live a connected life filled with regular interactions with others.¹⁰³ Montgomery notes that these spontaneous gatherings and opportunities to socialize can be encouraged by the way cities are designed – the buildings, land-use and mobility systems, public spaces and encounters with nature. Practices including adding pocket parks, public

art, berms and benches to sidewalks, and pedestrian friendly areas improve experiences of happiness and connection. Timothy Beatley notes that green cities are ones that "facilitate (and encourage) more sustainable, healthful lifestyles" and "emphasize a high quality of life and the creation of highly livable neighbourhoods and communities."¹⁰⁴

The City of Vancouver recognizes the importance of belonging and social connectivity to community health, and convened the Engaged City Task Force in 2012 in response to a Vancouver Foundation survey of metro Vancouver residents that revealed a lack of connection and engagement.¹⁰⁵ A sense of connection results from the relationships we have with each other and their strength, while engagement emerges from community commitment and our willingness to act to improve our communities. The City is now implementing recommendations including creating a pop-up city hall in 12 locations around the city, improved clarity around voting and development proposals, and a step-by-step guide for hosting block parties.¹⁰⁵

The evaluation of wellbeing and happiness informs the OECD Better Life Index and is now being used for city comparisons and to support urban design decisions.¹⁰⁷ The updated January 2014 Gallup-Healthways Well-Being Index used to survey millions individuals in the US includes five elements of well-being, each with its own score on a 0-10 scale:¹⁰⁸

- **PURPOSE:** Liking what you do each day and being motivated to achieve your goals
- **SOCIAL:** Having supportive relationships and love in your life
- **FINANCIAL:** Managing your economic life to reduce stress and increase security
- **COMMUNITY:** Liking where you live, feeling safe and having pride in your community
- **PHYSICAL:** Having good health and enough energy to get things done daily

These indicators on individual wellbeing are being paired with assessments at the community and neighbourhood scale, such as in the City of Toronto.¹⁰⁹ At the global scale, we can turn to the World Happiness Report in 2012 and 2015 for a comparative survey of countries.¹¹⁰

Sample metrics for 'Quality of Life' from the STAR Community Rating System:¹¹¹

- Education, Arts and Community – Community Cohesion

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- Neighbourhood Cohesion – Demonstrate an increased percentage of neighborhoods reporting positive levels of neighbourhood cohesion through community surveys¹¹²
 - Equity and Empowerment – Civic Engagement – Voter Turnout Rates – Increase the percentage of voters participating in local elections over time¹¹³
 - Health & Safety – Active Living – Policy and Code Adjustment – Require or incentivize bicycle and pedestrian amenities in new major development projects in high-density, mixed- use areas or near transit stations¹¹⁴

2.5 APPLYING THE SUSTAINABILITY FILTER

In the next Chapters we take a number of Sharing Economy sectors through the sustainability filter. Shared mobility, spaces, goods are explored in the greatest depth with a lighter focus on shared food and energy. We also identify and explore a new sector, Community Sharing, identified because of its relevance to local government and sustainability promise.

Our analysis demonstrates that sustainability is not inherent to all Sharing Economy activities nor is it a priority of all actors. We make recommendations for how local governments can enhance the sustainability benefits of the Sharing Economy based on a nuanced understanding of sustainability benefits specific to the varied activities and actors in each key sector.

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