Roadshow: Build your financial capacity

Exploring business models canvas and ESG metrics for sustainable urban development

2nd webinar, 7th of February 2024

Paula Ferrando Julià,
Eduardo Menéndez,
Scalable Cities Secretariat
January 2024

Funded by the European Commission

Table of Contents

1. Introduction

By harnessing digital technology, data analytics, and connectivity, cities can optimize resource use, enhance energy efficiency, reduce emissions, and foster sustainable practices. Smart infrastructure, from energy-efficient buildings to efficient transportation networks, enables local administrations to meet their green goals. Moreover, these initiatives often attract private and public investments, which financial skills can facilitate. Through a Smart City, local governments can leverage data-driven decision-making, innovative financing models, and public-private partnerships to align with EU sustainability objectives and drive economic growth, making their financial acumen essential in transforming cities into sustainable, green hubs of the future and wholeheartedly commit to the path towards a climate-neutral Europe by 2050.

Local administrations are crucial for the success of the European Union Sustainable Finance Disclosure Regulation (EU SFDR), the EU Taxonomy, and the New Green Deal due to their role in implementing green initiatives at the city and regional levels. They require financial skills to secure funds, manage budgets, attract investments, ensure compliance, foster innovation, and drive local economic growth in alignment with the EU's sustainability objectives. Local governments are the bridge between European sustainability policies and tangible projects, making their financial expertise vital for translating these initiatives into actionable, green solutions that benefit both the community and the environment.

1.1. What are Scalable Cities

Scalable Cities is a community of communities. Since 2014, a total of 20 European projects have been funded in which lighthouse cities and fellow cities have committed to developing innovative projects to achieve climate neutrality. The key idea has been to develop innovative energy solutions and business models that can be scaled up and replicated across Europe and lead to measurable results. In this sense, public administrations have been invited to take an active part in the energy transition by taking a proactive role in both designing innovative services and addressing the local market.

Scalable Cities has a Secretariat that supports all these Smart Cities communities to collect and document all the knowledge and experiences developed, as well as to provide support through different services.

Some of the technical solutions developed by the cities that are part of Scalable Cities are the following:

- Computing and cognitive solutions, providing applications or services enabling behavioural changes for citizens.
- Data-Driven business models enable cities or operators to manage energy efficiency better.
- Deployment of charging infrastructure for electric vehicles.

- District heating.
- Electric/hybrid public vehicle purchases.
- Energy management (district/blocks/ buildings/Demand/response) using technologies such as AI, microgrid, blockchain or others.
- Energy storage.
- Frugal solutions: it is an approach that involves using ingenuity to innovate most simply and effectively possible using the least amount of resources.
- Industrial heat production.
- Infrastructure physical and digital.
- Mobility stations.
- New buildings.
- New public transport infrastructures.
- Park & ride facilities.
- Positive Energy Blocks or Positive Energy Districts.
- Private buildings retrofitting.
- Public buildings retrofitting.
- Public lighting.
- Renewable energy production.
- Renewable energy thermal production.
- Vehicle Sharing Platforms (carpooling, sharing).
- Bundling services, please specify which sectors are involved (bundling services means grouping a set of actions in a coherent and global business model. E.g. combining retrofitting with renewables and EV charging stations).
- Others.

1.2. What is the Roadshow: Build your financial capacity?

The Roadshow is a service offered by the Scalable Cities Secretariat to support cities in the field of financial design of projects such as those mentioned above (business model, financial schemes and everything that unfolds from it). With this objective, a series of activities will be carried out through which basic and advanced information on finance will be acquired, to have resources with which to think and design economically sustainable and scalable urban projects to achieve climate neutrality.

This document covers to the content of the second webinar: "Exploring business models canvas and ESG metrics for sustainable urban development" on 7 February 2024.

If you are reading this because you are going to attend the second webinar, welcome on board!

This webinar will be interactive and will promote reflection on the needs and role of public administration.

1.3. Agenda

10:00 - 10:05	Introduction of Scalable Cities and Smart City Project. Paula Ferrando GNE Finance.
10:05 - 10:15	Brief presentation and assessment of general knowledge on business model design and market analysis.
10:15 – 11:00	Explanation about how to design business models, how to analyse the market conditions and implement ESG metrics. Eduardo Menendez, GNE Finance.
11:00 – 11:05	Explore Creative Tools: Unveiling conventional methods and AipPowered innovations. Paula Ferrando, GNE Finance.
11:05 – 11:20	Q&A
11:20 – 11:35	Introduction to the EU City Calculator: Prospective modelling tool supporting public authorities in reaching climate neutrality. Bénédicte Weber, Energy Cities.
11:35 – 11:50	Explanation of the Green Cities Wiki and some more interesting material to learn about business models. Eelco Kruizinga, Smart City Marketplace.
11:50 – 12:00	Q&A about Eu City Calculator and Green Cities Wiki initiatives
12:00	End of the webinar

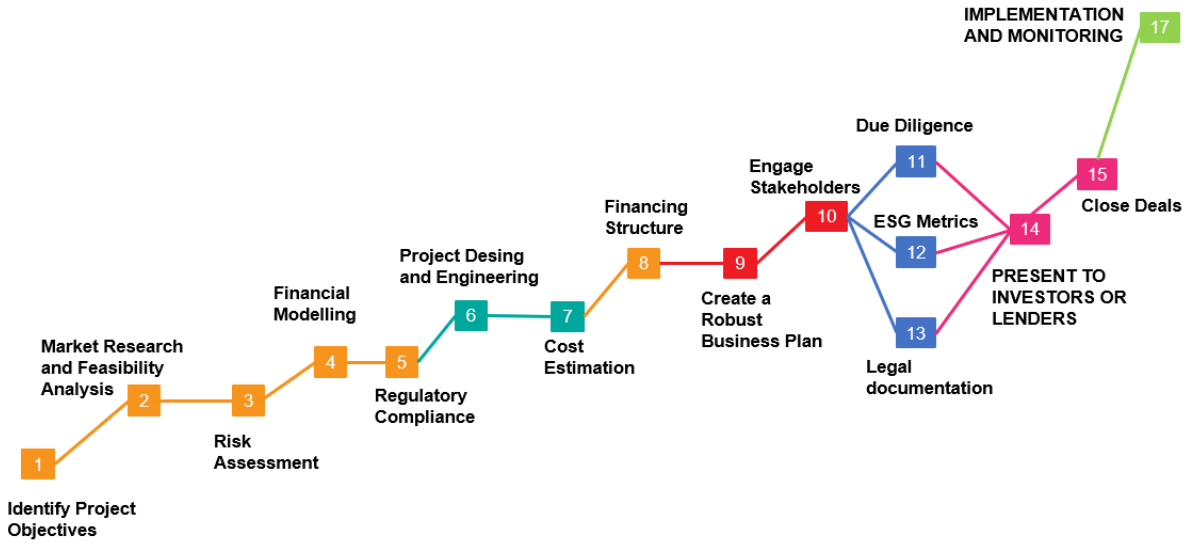
2. Market analysis as a starting point for the design of a business model

2.1. Topics of the second webinar

In the previous webinar, we presented a design process proposal for a bankable project (see Figure 1). On this path toward project implementation, there are numerous steps, and after identifying the project objectives (point 1), we delved into 'Market Research and Feasibility Analysis' (point 2). We also explored how to initiate 'Financial Modelling' (point 4) and considered the 'Financial Structure' (point 8) providing you with a table to start organizing data.

In this second webinar, our focus will be on points 2 ('Market Research and Feasibility Analysis'), as well as points 9 ('Create a Robust Business Plan') and 12 ('ESG Matrics'). You will notice that some aspects are already covered when discussing the business model, especially when using specific tools for its development, such as numbers 7 ('Cost Estimation'), 10 ('Engage Stakeholders'), and 12 ('ESG Matrics).

Figure 1: Design process for a bankable project



While we propose this sequence of steps in figure 1, it is essential to emphasize that it is not a rigid formula. All these steps help us organize and generate information for greater project viability and credibility in the eyes of potential investors, be they banks or otherwise. Project maturation involves research, questioning, debate, drafting, calculations, presentation, and revisiting the process until it attains sufficient consistency.

This realization occurs as the project progresses from point 9 to 10 and from 10 to 14, where sometimes generating pilots with initial investments may be necessary. This aspect has been a key consideration in Smart City projects, and now, through a collective effort at the European level, there is a commitment to building trust and maturing the market, making private economic injection effective and attractive.

2.2. What is market analysis?

Market analysis is a process that involves assessing and understanding the business environment in which a product, service, or project operates. This analysis provides key information that aids in making informed decisions regarding business strategies, marketing, and product and/or service development.

In the context of energy transition projects in Smart Cities, market analysis focuses on understanding the dynamics of the sustainable energy market, intelligent technologies, and solutions for smart cities.

For an initial perspective on how to begin organizing this analysis, we present a table here outlining the "macro" and "micro" approaches. Both are essential for a comprehensive and well-informed understanding of the market in the context of energy transition projects in Smart Cities.

Aspect	**Macro Analysis**	**Micro Analysis**
Main Focus	Considers factors at the word, European and national level.	Focuses on factors at the regional and local or specific level.
Geographic Scope	Broad, covering extensive areas.	Localized, focuses on a specific location.
Relevant Data	• Energy policies and regulations.	• Local demand and preferences.
	• General economic trends.	• Competition in the region.
	• Government incentives and barriers.	• Potential collaborations and alliances.
	• National/regional technological advancements.	• Socioeconomic profile of the local population.
	• Large-scale environmental conditions.	• Financial viability at the community level.
Objectives	• Identify opportunities and challenges broadly.	• Tailor solutions to specific needs.
	• Understand the political and economic context.	• Assess local acceptance of technologies.
	• Evaluate trends impacting the industry.	• Identify opportunities for local collaboration.
Example Questions	• What are the national energy policies?	• What is the specific local energy demand?
	• What incentives exist for green projects?	• Who are the direct local competitors?
	• How do technological trends impact the country?	• How do local conditions impact the project?
	• What are the general environmental conditions?	• What is the community's financial capacity?

2.3. Tools for market analysis

This table outlines various analysis tools for the development of business models related to energy transition in Smart Cities, focusing on municipal perspectives. Each tool addresses specific aspects, either at the macro or micro level, providing a comprehensive approach for informed decision-making in the planning and execution of projects.

Analysis Tool	Type	Objective and Utility/Relevance	Description of Use
PESTEL Analysis	Macro	**Objective:** Analyse External Factors **Utility/Relevance:** Identify risks and opportunities at a broad level.	Examine political, economic, social, technological, environmental, and legal factors impacting energy transition in a Smart City at a macro level.
SWOT Analysis	Micro	**Objective:** Evaluate strengths, weaknesses, opportunities, and threats **Utility/Relevance:** Guide specific municipal strategies.	Analyse internal and external strengths, weaknesses, opportunities, and threats in the municipal context, considering energy transition.
PESTO Analysis (Operational PEST)	Macro and Micro	**Objective:** Evaluate key operational factors **Utility/Relevance:** Identify specific opportunities and threats in project execution.	Analyse operational factors like internal processes, technology, and human resources to identify critical aspects affecting the implementation of municipal projects.
SWOT-C (Conditions) Analysis	Micro	**Objective:** Integrate SWOT with conditions **Utility/Relevance:** Consider external and internal conditions in strategic planning.	Integrate SWOT analysis with a focus on external and internal conditions to provide a comprehensive understanding of specific dynamics and challenges in the municipal context.
Trends Analysis + Citizen Surveys	Micro	**Objective:** Identify local trends and preferences **Utility/Relevance:** Align projects with citizen expectations.	Analyse emerging trends and gather opinions through citizen surveys to understand local preferences and needs related to energy transition.

These tools are among the most well-known and are believed to be of interest to public administrations. However, in the realm of entrepreneurship and business, there are many more tools available. Over the course of their journey, many consulting firms have developed proprietary tools that have later been externalized, such as the BCG Matrix (Boston Consulting Groups) or the McKinsey Matrix. Both tools are presented as market analyses or business evaluations; in this document, we have positioned them in the evaluation section as, from the perspective of public administration, we believe these tools make more sense in this context. Nevertheless, it's essential to consider that an administration doesn't evaluate competition to the same extent as businesses do. Instead, the focus is on the objectives of decarbonization by 2050. The idea is to analyse our current position, the services and technologies at our disposal, and how to scale them over time—where to exert more effort and how to channel those energies.

In this regard, citizen surveys, although challenging and resource-intensive when done properly, are one of the tools where public administrations have a distinct advantage. The administration is one of the entities most capable of conducting effective surveys due to the added credibility stemming from its obligation to provide essential services and support to the public without a profit motive.

2.4. How to combine them for a better starting point

The presented tools are not effective on their own and are most often combined to organize and prioritize information. Ultimately, this is a process, and these tools assist us in thinking more critically, fostering discussions, and making informed decisions. The table below suggests various combinations to gain a more comprehensive understanding of the market at both macro and micro levels.

Analysis Level	Combined Analysis Tools	Justification and Added Value
Macro	**PESTEL + Trends Analysis**	PESTEL identifies political, economic, social, technological, environmental, and legal factors, while Trends Analysis highlights emerging trends. Combining both provides a broad view of the macro environment, enabling the public administration to anticipate changes and adapt strategies.
Micro	**SWOT + Citizen Surveys**	SWOT analyses internal and external strengths, weaknesses, opportunities, and threats. Integrating Citizen Surveys provides direct perspectives from citizens, validating and expanding the SWOT assessment with public opinions and expectations.
Strategic	**PESTO + SWOT-C**	PESTO (Operational) focuses on operational aspects, while SWOT-C concentrates on specific market conditions. Combining both tools at the strategic level offers a deep understanding of how operational and market conditions impact the public administration's position in energy transition.
Comprehensive	**PESTEL + SWOT + Citizen Surveys**	Integrating PESTEL, SWOT, and Citizen Surveys provides a comprehensive view at both macro and micro levels, allowing the public administration to understand external factors as well as the perceptions and needs of the population. This facilitates the formulation of strategies more aligned with the environment and citizen expectations.

These combinations provide a solid framework for understanding the market in the context of a Smart City, considering operational factors, specific conditions, emerging trends, and the voice of citizens. The added value lies in the public administration's ability to make more informed decisions and design a robust Business Model that effectively addresses challenges and capitalizes on opportunities in energy transition.

3. Tools for the design of the business model to boost Smart Cities projects

3.1. Ingredients for promoting Smart City projects within the public administration

1. **Tech Market Awareness:**
    - **Description:** Stay updated on market technologies for sustainable urban development and Smart City projects.
    - **Significance:** Informed decisions and leveraging advancements for urban innovation.
2. **Administrative Tool Proficiency:**
    - **Description:** Master administrative tools for effective urban innovation and Smart City initiatives.
    - **Significance:** Streamlined processes and enhanced decision-making.
3. **Business Model Exploration:**
    - **Description:** Explore diverse Smart City business models from various cities.
    - **Significance:** Insights into funding, collaboration, and sustainable approaches.
4. **Creative Design Process:**
    - **Description:** Allocate time for creative design to generate innovative solutions.
    - **Significance:** Identifying novel approaches aligned with the city's goals.
5. **Multidisciplinary Team Building:**
    - **Description:** Build a diverse team with expertise in technology, urban planning, finance, and community engagement.
    - **Significance:** Comprehensive problem-solving and holistic Smart City projects.
6. **Reflective Internal Deliberation:**
    - **Description:** Reflect on Smart City elements tailored to local needs (Smart citizens, Smart Technology, Smart services).
    - **Significance:** Creating a meaningful, locally adapted Smart City vision.

3.2. Key tools for designing business models in Smart Cities projects

In the dynamic landscape of energy transition projects within Smart Cities, effective business model design is essential for public administrations to drive innovation and sustainability. This comprehensive table provides detailed insights into various tools, including their descriptions, applications, and specific focus areas, guiding the strategic development of projects for a smarter and greener urban future.

Tool	Description	Use	Focus
Business Model Canvas	Visualizes key components of a business model	Ideation, visualization, and iteration	Overall business structure, key partners, and revenue streams
Lean Canvas	Streamlined version focusing on key elements	Agile development and quick validation	Problem-solution fit, key metrics, and unique value proposition
Blue Ocean Strategy	Shifts focus from competition to innovation	Creating uncontested market space	Identifying new opportunities, reducing competition
Design Thinking	User-centric approach to problem-solving	Understanding user needs, ideation, prototyping	User experience, empathy, and iterative problem-solving
Value Proposition Canvas	Focuses on the value a product brings	Developing, testing, and refining value props	Customer segments, pain points, and gain creators
Empathy Map	Visualizes user thoughts and feelings	Understanding user needs and motivations	Gaining insight into user experiences and emotions
Problem and Solution Tree	Identifies and analyses problems and solutions	Systematic problem-solving and idea generation	Root causes of issues and potential strategies to address them

In navigating the complex terrain of Smart City energy transition projects, selecting and integrating these business model design tools strategically is essential for public administrations. From the overarching structure provided by the Business Model Canvas to the user-centric innovation driven by Design Thinking, each tool contributes a unique perspective. The synergy of these tools empowers public administrations to develop sustainable and innovative business models aligned with the goals of creating smarter and greener urban environments.

In ***Annex 1 - Infographics of Business Model Design Tools*** you will find interesting links to find out more about each of the tools as well as the outline or basic canvas for a better understanding and possible future use.

On the other hand, we would like to highlight the **City Model Canvas**, which is an adaptation of the Business Model Canvas but focused on the development of a public service. The City Model Canvas (CMC) is a framework that city councils can use to articulate how they expect to create and deliver value in an economically, environmentally, and socially sustainable way through smart services. They can also use the framework to assess existing models and innovate within them. The CMC is an adaptation of the Business Model Canvas (BMC); it replaces several of the elements of the BMC with elements that are relevant to a public service context:

Business model Canvas for Smart Cities -> City Model Canvas

Links of interest:
https://www.researchgate.net/figure/The-City-Model-Canvas-CMC_fig2_339011818
https://www.mdpi.com/1996-1073/12/24/4798
https://www.esade.edu/itemsweb/idgp/Creating%20business%20models%20for%20smart%20cities%20a%20practical%20framework.pdf

<table>
<tr><td colspan="5">1. Mission statement What is the ultimate goal that the city seeks to achieve?</td></tr>
<tr><td rowspan="2">6. Key Partnerships

Who can help the city deliver the proposed value to the beneficiaries? Who can access key resources that the city council does not have?</td><td>7. Key activities

What must the city council do to create and deliver the proposed value?</td><td rowspan="2">2. Value Proposition

What specific benefits are created and what specific problems does the proposed service solve or alleviate?</td><td>4. Buy-in & support

Whose buy-in is needed in order to deploy the service (legal, policy, procurement, etc.)?</td><td rowspan="2">3. Beneficiaries

Who will directly benefit from the proposed services?</td></tr>
<tr><td>8. Key infrastructure and resources & key regulatory framework

What key resources does the city council have to create and deliver the value? What infrastructure does it need? What is the key regulatory framework required?</td><td>5. Deployment

How will the city solve the problems of the Value proposition specifically?</td></tr>
<tr><td colspan="3">9. Budget cost structure

What costs will the creation and delivery of the proposed services entail?</td><td colspan="2">10. Revenue streams

What sources of revenue for the city do the proposed services provide? What other sources of revenue does the city have?</td></tr>
<tr><td colspan="3">11. Environmental costs

What negative environmental impacts can the proposed services cause?</td><td colspan="2">12. Environmental benefits

What environmental benefits will the proposed services deliver?</td></tr>
<tr><td colspan="3">13. Social risks

What are some of the potential social risks that the proposed service entails? Who is most vulnerable as a result?</td><td colspan="2">14. Social benefits

What social benefits will the proposed services bring about? For whom will these benefits materialize?</td></tr>
</table>

3.3. Combining these tools for more advanced applications

Tool Combination	Added Value of the Combination	Type of Strategy
Business Model Canvas + Design Thinking	Integrating business structure with a user-centric approach ensures innovation is driven by real needs. The Problem and Solution Tree within the Business Model Canvas aids in systematically identifying and solving urban development challenges.	User-Centric Urban Development Strategy with Systematic Problem-Solving
Problem and Solution Tree + Business Model Canvas	Utilizing the Problem and Solution Tree within the Business Model Canvas allows a structured approach to identify and solve urban development challenges, ensuring alignment with overall business structure and goals.	Integrated Urban Development Strategy with Structured Problem-Solving
Value Proposition Canvas + Empathy Map	Merging Value Proposition Canvas with Empathy Map ensures a deep understanding of citizen needs and emotions, guiding the development of sustainable urban solutions. The Business Model Canvas ensures overall business viability.	Citizen-Centric Urban Development Strategy with Emotionally Aligned Solutions
Design Thinking + Blue Ocean Strategy	Applying Design Thinking for citizen-centric innovation and incorporating Blue Ocean Strategy for market differentiation ensures the creation of sustainable and distinctive urban solutions.	Innovative and Differentiated Urban Development Strategy
Problem and Solution Tree + Empathy Map	Combining systematic problem-solving through the Problem and Solution Tree with the empathetic understanding of citizen needs and emotions ensures holistic and effective urban development solutions.	Holistic Urban Development Strategy with Systematic Problem-Solving

3.4. Tools to evaluate the services and the infrastructure to know what one is ready to scale up

Tool	Assessment Tool	Proposed Evaluation Process	Identification of Scalability
BCG Matrix	Evaluation: Classifies infrastructure / services into four categories: Stars, Question Marks, Cash Cows, and Dogs based on market growth and market share.	Process: Analyses the market position and growth potential of each infrastructure or service, guiding strategic decisions for resource allocation.	Scalability Identification: Service or infrastructures in the "Stars" category, indicative of high market growth and share, may exhibit scalability potential.
Five Forces by Porter	Evaluation: Examines five competitive forces: bargaining power of buyers/suppliers, threat of new entrants, threat of substitutes, and competitive rivalry.	Process: Assesses industry competitiveness, considering how the private market can replace or complement public administration in Smart City projects.	Scalability Identification: Low competitive rivalry, low threats, and high buyer/supplier power suggest scalability potential, indicating the private sector's ability to thrive.
McKinsey Matrix	Evaluation: Categorizes infrastructures / services into four quadrants based on market attractiveness and business strength.	Process: Evaluates factors like market size, growth rate, and competitive position, considering the private sector's role in Smart City initiatives.	Scalability Identification: Infrastructures / services in the "High Attractiveness, High Strength" quadrant may be scalable due to favourable market conditions and the private sector's robust performance.

These tools offer unique insights into evaluating Smart Cities infrastructures and services, considering the private market's potential to replace or collaborate with public administration. The BCG Matrix, Porter's Five Forces, and the McKinsey Matrix each contribute to identifying scalability based on different criteria.

4. How and why to measure the impact of a Smart City business model

4.1. The significance of utilizing measurable data to assess project impact

In the realm of sustainable urban projects within Smart Cities, having measurable data is paramount for effective implementation and ongoing monitoring. Measurable data serves as a crucial tool to gauge the impact of these initiatives, providing valuable insights into key performance indicators, resource utilization, and overall project success. It not only enables evidence-based decision-making but also facilitates adaptive strategies, ensuring that urban development aligns with sustainability goals and addresses the evolving needs of the community. The transparency of data enhances trust and credibility, fostering a more inclusive governance system where stakeholders can actively engage with reliable information, promoting collaborative efforts towards building smarter and more resilient urban environments.

4.2. Key performance indicators for Smart Cities

In realm of Smart Cities, achieving meaningful key performance indicators (KPIs) is essential for successful project tracking and development. Here, we explore seven diverse avenues to gather insightful KPIs, each contributing distinct perspectives to project evaluation and justification.

1. **ESG Metrics (Environmental, Social, and Governance):**
    - **Description:** ESG metrics encompass a set of criteria that evaluate a project's environmental impact, social responsibility, and governance practices. This holistic approach assesses sustainability and ethical considerations.
    - **Importance:** ESG metrics are crucial for securing funding as they demonstrate a project's commitment to responsible practices. Investors and stakeholders increasingly prioritize projects with strong ESG performance, aligning financial decisions with sustainability goals.
2. **Carbon Footprint:** *(It may be considered within ESG metrics, but its calculation goes much further, taking into the account operational and embedded carbon, as well as the entire materials cycle.)*
    - **Description:** Carbon footprint measures the total greenhouse gas emissions associated with a project. It assesses the environmental impact, particularly in terms of climate change.
    - **Importance:** Assessing and minimizing the carbon footprint is crucial for securing funding, especially in an era of heightened environmental consciousness. Investors and funders often prioritize projects with low carbon footprints as part of sustainable development efforts.
3. **Financial Metrics:**
    - **Description:** Financial metrics include various indicators such as return on investment (ROI), net present value (NPV), and cost-benefit analysis. These metrics assess the project's financial viability and potential returns.
    - **Importance:** Financial metrics are fundamental for project justification and funding. They provide a clear understanding of the project's economic feasibility, helping attract investors and secure financial support.

4. **E-metrics:**
    - **Description:** E-metrics focus on digital aspects of Smart Cities projects, measuring indicators related to technological advancements, data utilization, and digital innovation.
    - **Importance:** In the contemporary landscape, E-metrics are vital for showcasing the project's alignment with digital trends. They contribute to securing funding by highlighting the project's technological relevance and potential for innovation.
5. **Sustainability Report:**
    - **Description:** A sustainability report provides a comprehensive overview of a project's environmental, social, and economic impact. It includes detailed information on sustainable practices and outcomes.
    - **Importance:** Sustainability reports play a pivotal role in justifying the project's long-term value. They attract funding by demonstrating a commitment to sustainable development and a positive impact on the community and the environment.
6. **UN Sustainable Development Goals (SDGs) Framework:**
    - **Description:** The UN SDGs provide a global framework for sustainable development, encompassing diverse goals related to poverty, health, education, and more.
    - **Importance:** Aligning a project with UN SDGs enhances its credibility and attractiveness for funding. It illustrates a commitment to global sustainability targets, aligning the project with a broader social and environmental context.

5. Creative tools to boost innovative business models for Smart Cities Annexes

In a creative process, there are often moments of stagnation that hinder our progress. One of the elements we proposed in section 3 of this document for the promotion of Smart City projects from the administration is the "Creative Design Process". In this process, allowing time involves not only overcoming creative blocks but also "playing" and implementing various tools to explore possibilities. Hence, the importance of having a "Multidisciplinary Team," which is readily achievable within an administration due to the presence of diverse departments with professionals from various backgrounds. Regardless, this creative process is accompanied by another element we introduced: "Reflective Internal Deliberation," where the Smart City concept can be tailored to the city based on citizens' input, new technology, and service development. To illustrate, we present creative tools applicable throughout the design process of a bankable project (refer to figure 1 in section 2 of this document).

1. **Brainstorming:**
    - **Description:** Gathers a group to generate ideas freely without criticism, utilizing techniques like brainwriting and brainwalking.
    - **Use:** Encourages the creative generation of ideas for key components of the business model.
2. **Mind Mapping:**
    - **Description:** Graphical representation of interrelated ideas and concepts.
    - **Use:** Facilitates visualization and connection of key elements in the business model.
3. **Storyboarding:**
    - **Description:** Visual sequence of events or processes.
    - **Use:** Helps visualize the customer experience or workflows in the business model.
4. **SCAMPER:**
    - **Description:** Acronym representing Substitute, Combine, Adapt, Modify, Put to another use, Eliminate, and Rearrange.
    - **Use:** Provides a framework to stimulate creativity and innovation by asking specific questions about the business model.
5. **Analogies and Metaphors:**
    - **Use:** Stimulates creativity by comparing the business model with different situations or concepts.
6. **Role Playing:**
    - **Use:** Allows participants to simulate business model situations to better understand interactions and potential challenges.
7. **Rapid Prototyping:**
    - **Description:** Rapid creation of simplified versions or prototypes of the business model.
    - **Use:** Facilitates iterative testing and improvement of the model before implementation.
8. **Business Model Generation Card Game:**
    - **Description:** Based on the "Business Model Generation" book, provides cards with key elements of the business model to stimulate creativity.
    - **Use:** Facilitates creative thinking about specific components of the model.

9. **6-3-5 Technique:**
    - **Description:** Six participants generate three ideas each in five minutes.
    - **Use:** Rapid idea generation adaptable to explore different aspects of the business model.
10. **Six Thinking Hats:**
    - **Description:** a tool by Edward de Bono, employs metaphorical hats of different colours to represent diverse thinking modes, fostering structured creativity and decision-making. Participants switch hats symbolically to focus on specific aspects.
    - **Use:** White Hat (Objective): Facts and information. Red Hat (Emotional): Intuition and emotions. Black Hat (Critical): Caution and potential issues. Yellow Hat (Optimistic): Positive aspects and benefits. Green Hat (Creative): Generating new ideas. Blue Hat (Process): Managing the thinking process.
11. **The "Five Whys"**
    - **Description:** is a problem-solving technique aimed at identifying the root cause of an issue through successive questioning. By repeatedly asking "Why?" it explores deeper layers of causality to uncover the essence of the problem.
    - **Use:** Encourages thorough analysis by delving beyond surface manifestations of a problem. This approach helps address the root cause rather than just its symptoms.

These tools can be used individually or combined based on the specific needs of the business model development process. The diversity in applying these techniques fosters creativity and innovation in designing business models.

On the other hand, in the realm of Smart City urban projects, the strategic application of Artificial Intelligence (AI), which comprises language models and generative image technologies, emerges as a potent force for fostering innovative business models aimed at creating value for the public. This document provides a concise overview of how these technologies can be pivotal in cultivating creativity and driving the design of business models with a public-centric approach:

1. **Language Models (Example: GPT-3)**
    - **Business Model Ideation:** Harness language models to generate inventive business model ideas. Present a prompt infused with information about your urban project, allowing the model to propose creative solutions geared towards areas such as public services, civic engagement, and citizen well-being.
    - **Proposal Articulation:** Streamline the articulation of business proposals and plans. Describe your project, and employ AI to generate coherent, persuasive narratives that resonate with the public's needs and aspirations.
    - **Data-Driven Insights:** Leverage AI for data analysis, providing valuable insights into citizen behaviour, preferences, and urban trends. This information can guide the formulation of business models that align with the evolving needs of the public.
2. **Generative Image AI (Example: GANs)**
    - **Conceptual Visualization:** Generate images illustrating abstract business concepts tailored for public administration. For instance, if developing a citizen-centric service, AI can create visualizations of the user experience and its impact on community well-being.
    - **Urban Business Design:** Utilize generative AI to visually conceptualize business models that align with the urban landscape. Explore diverse options, considering the societal impact and value generated for citizens, before finalizing business strategies.
    - **Stimulating Creativity:** In times of creative stagnation, infuse AI with initial ideas to generate fresh perspectives and innovative combinations that resonate with the public's needs and preferences.

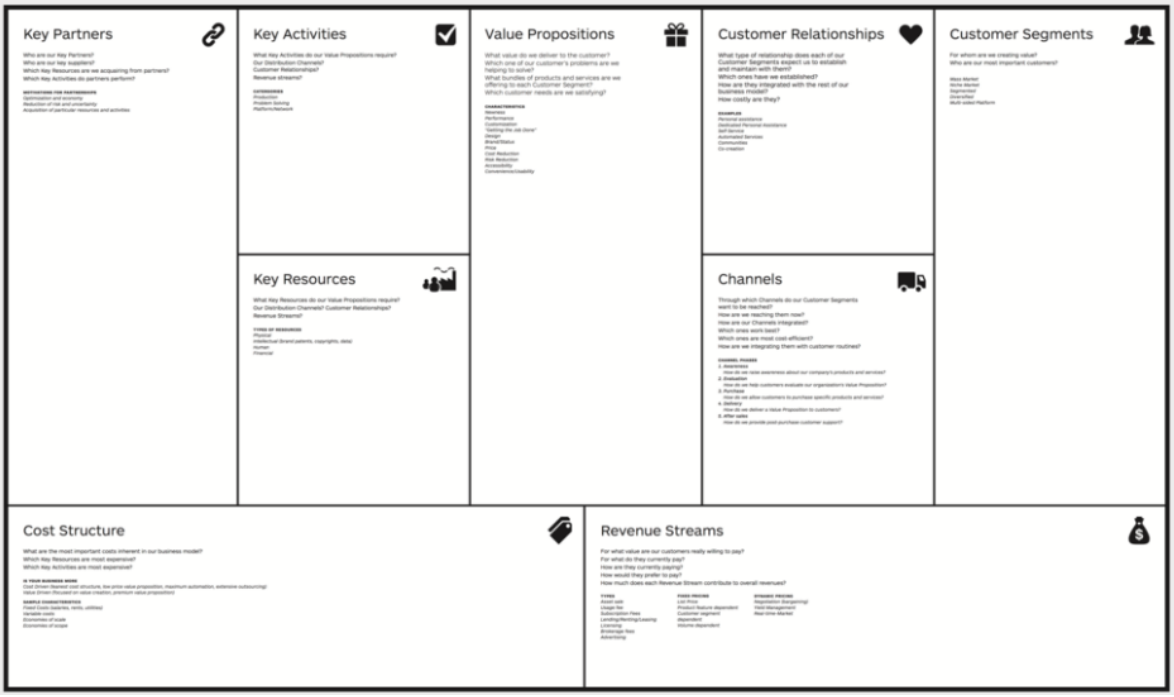
3. **Combined Use:**
    - **Co-Creation with AI:** Engage AI in collaborative brainstorming sessions to co-create business models that seamlessly blend human ingenuity with AI-generated insights. This collaboration can lead to novel and inclusive business approaches.
    - **Real-time Feedback:** Gain instantaneous feedback on business proposals. AI can evaluate the viability of models and highlight potential challenges, allowing for agile refinement to better serve the public's interests.

It is imperative to recognize that AI serves as an augmentative tool. Human insight, ethical considerations, and a deep understanding of the public's context remain fundamental to ensure that the conceived business models are not only innovative but also socially responsible and citizen-centric. This guide aims to empower public administrations involved in Smart City initiatives, providing a framework to creatively design business models that drive value and enhance the overall well-being of the urban community.

6. Annex - Infographics of business model design tools

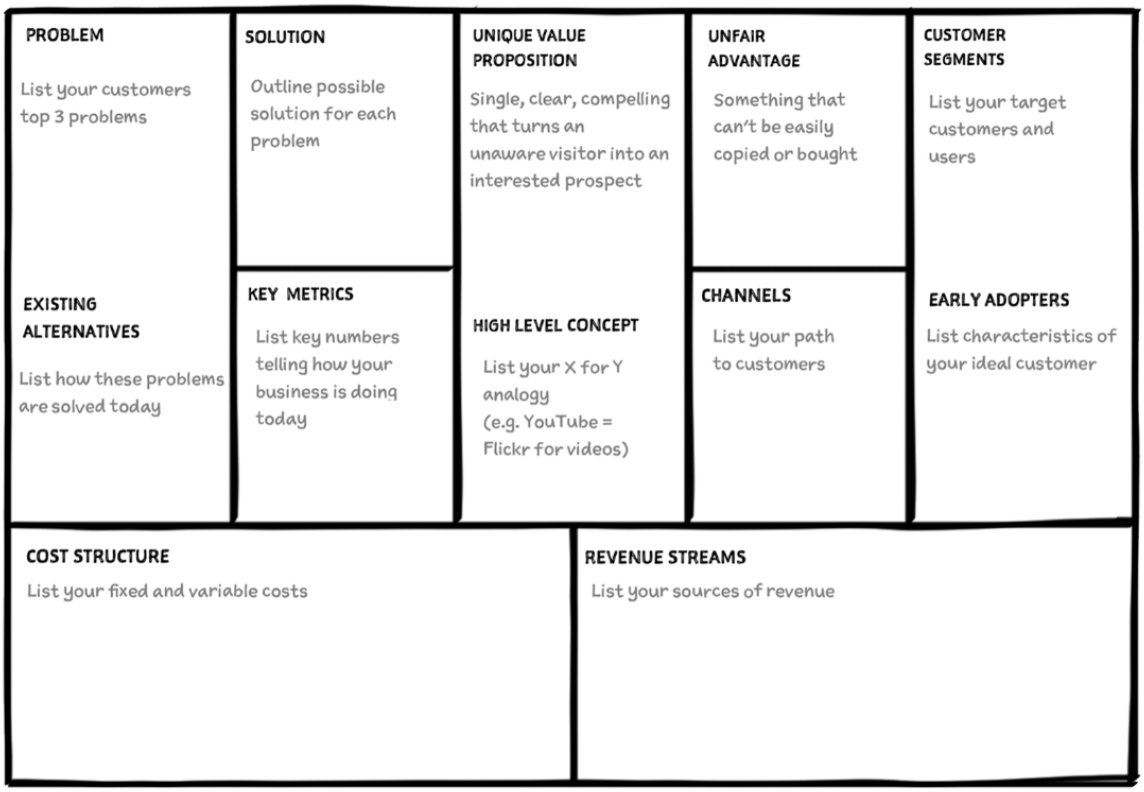
Business model Canvas

Links of interest:
https://en.wikipedia.org/wiki/Business_Model_Canvas



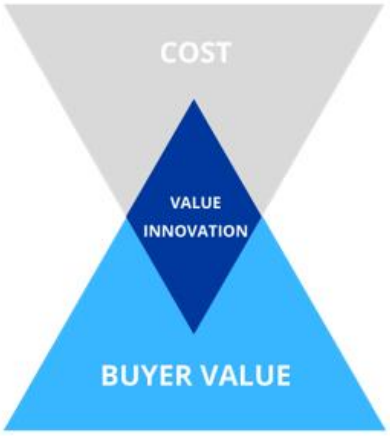
Lean Business model Canvas

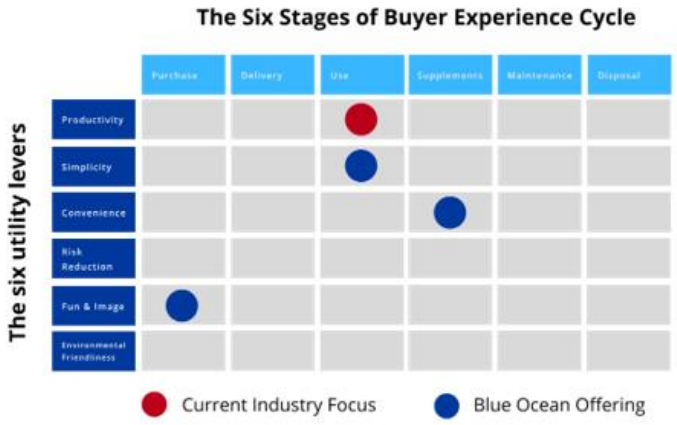
Links of interest:
https://www.leanfoundry.com/tools/lean-canvas



Blue Ocean Strategy

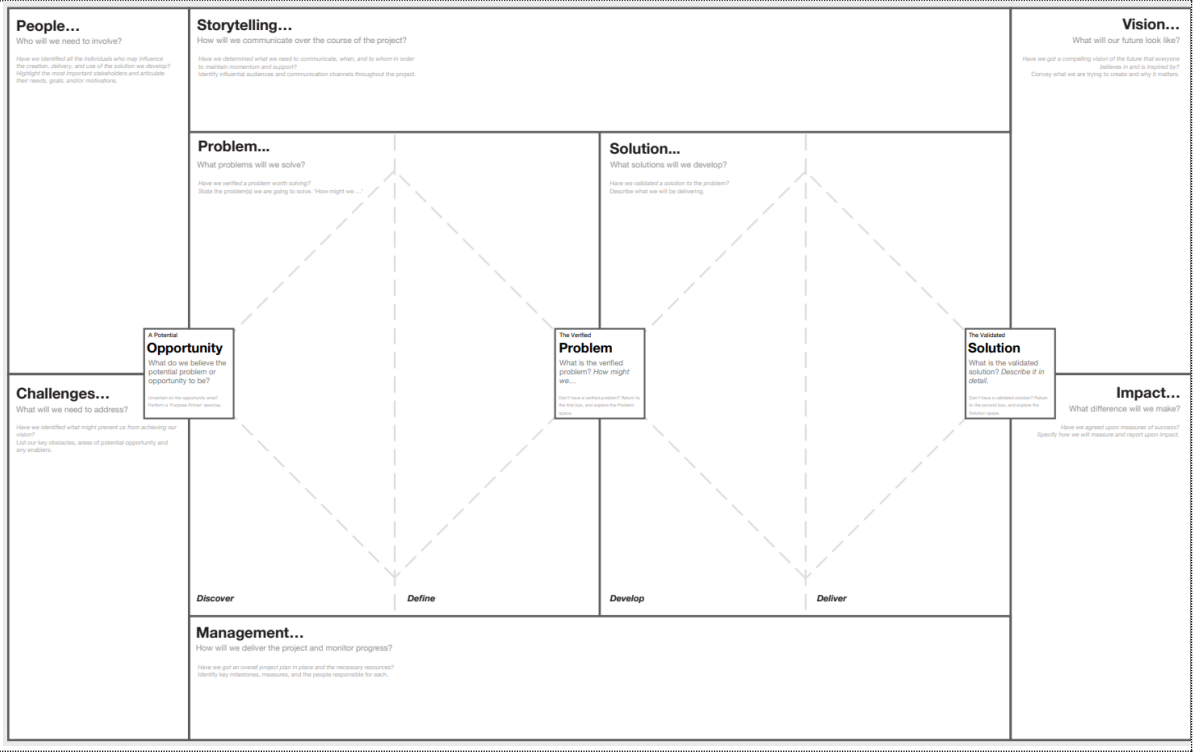
Links of interest:
https://www.blueoceanstrategy.com/tools/red-ocean-vs-blue-ocean-strategy/





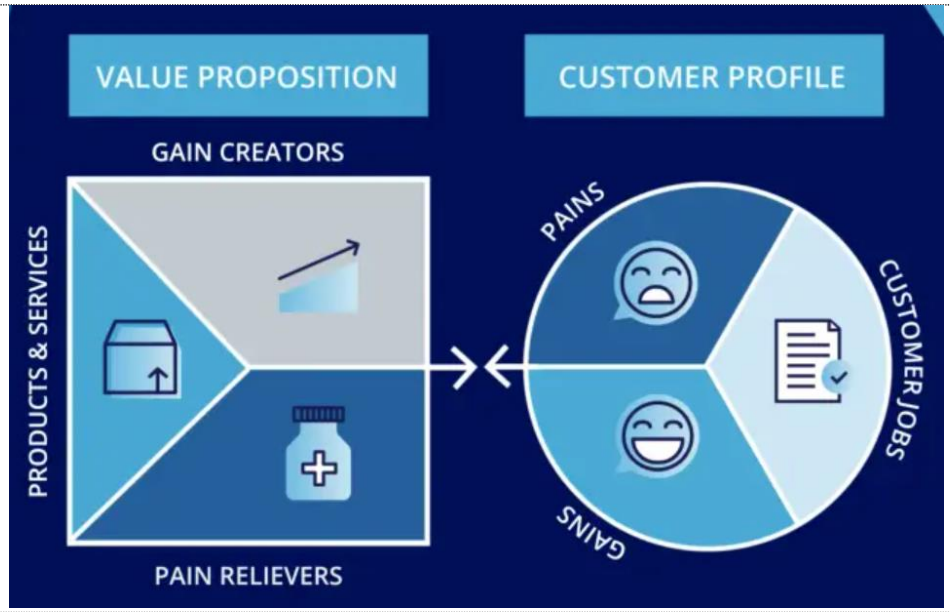
Design Thinking Canvas

Links of interest:
https://www.whatcouldbe.com/viewpoints/designthinkingcanvas



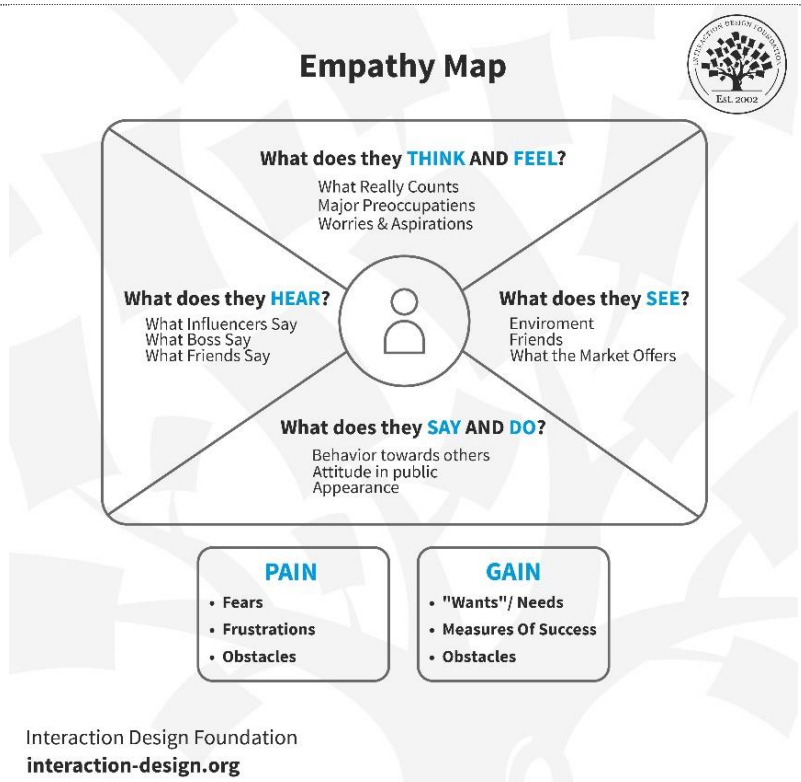
Value Proposition Canvas

Links of interest:
https://www.b2binternational.com/research/methods/faq/what-is-the-value-proposition-canvas/



Empathy Map

Links of interest:
https://www.interaction-design.org/literature/article/empathy-map-why-and-how-to-use-it



Problem and Solution tree

Links of interest:
https://www.stepupsmartcities.eu/Portals/51/Tools%20and%20Resources/Training/STEP%20UP%20Glasgow%20-%20Problem-Solution%20Tree%20Analysis%20Guidebook.pdf