IRIS
smart cities

IRIS Smart cities

Workshop
Smart City Business Modelling

February 4th, 2021

Moderator

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Food for Thought

Which ways is the SC-BMC useful for you?
How do you intend to use it within the framework of IRIS project or your future business activities?

business model ?

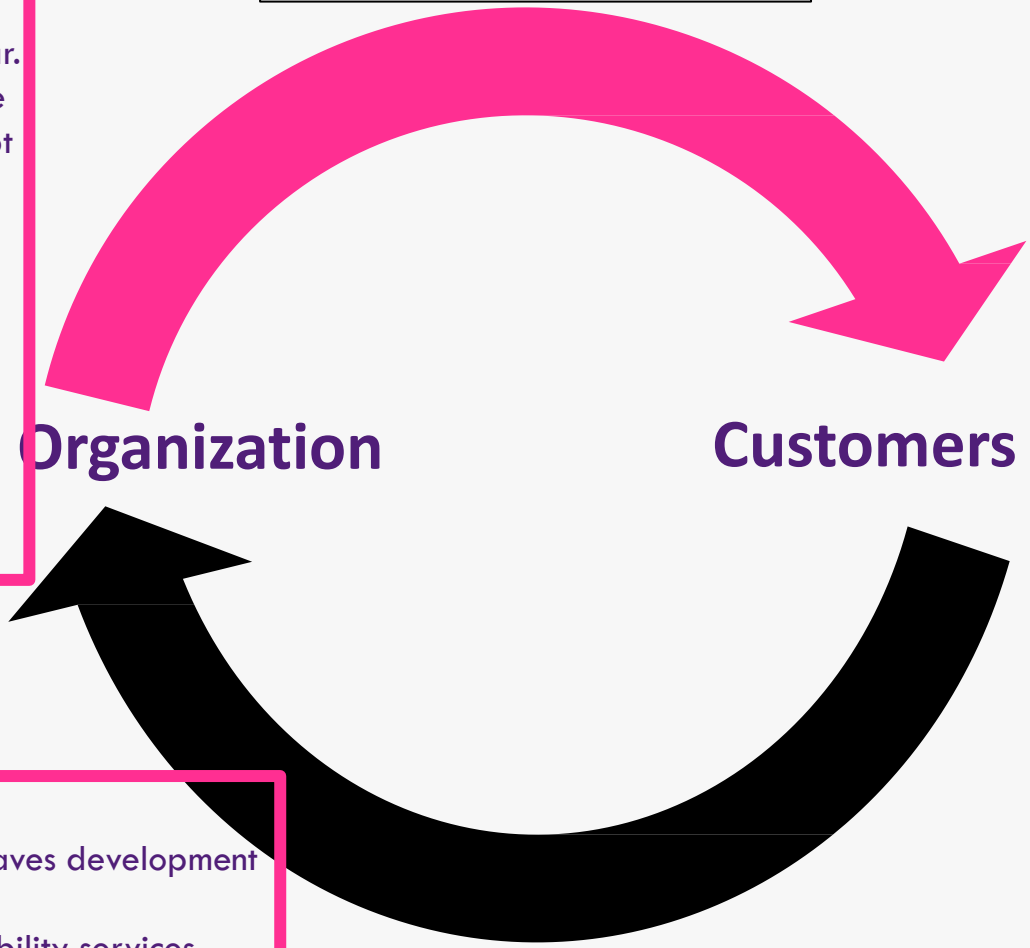
BUSINESS MODEL

EC2B creates value for property developers by offering them a platform service through which their tenants/occupants can access mobility services of third parties. These property developers have an extra argument to negotiate a rebate on the parking norm for new developments with city government

Product / Service

Value Creation

- Residents don't need to own a car.
- Real estate developers offer the market a low-car housing concept through a package solution, attractive to both customers (residents) and authorities (the municipality).
- Other mobility service providers can reach a larger and affluent market for their sustainable mobility services.



Value Delivery

- marketing message reinforced by the sales approach highlighting the socioeconomic benefits
- improved services of property developers (made credible by customer service practices)

Value Capture

- Parking norm reduction saves development costs
- Service providers sell mobility services

Revenue €

4

business model canvas

by Alex Osterwalder and Yves Pigneur (2005)

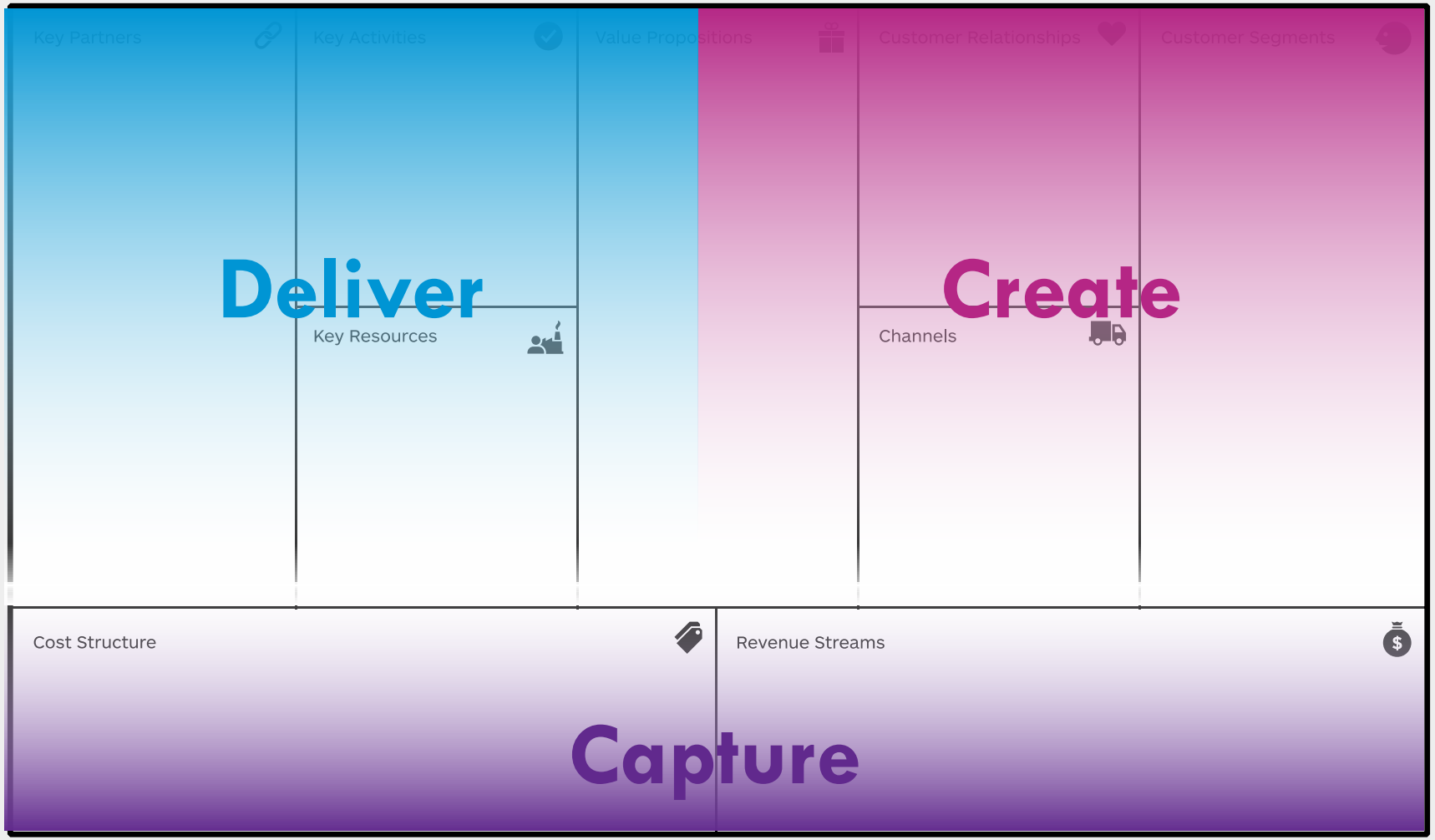
IRIS
smart cities

Business Model Canvas:

A toolbox for planning your enterprise, Value produced

The Business Model Canvas

Designed for:	Designed by:	Date:	Version:



DESIGNED BY: Strategyzer AG
The makers of Business Model Generation and Strategyzer

Strategyzer
strategyzer.com

Smart Cities business model canvas

Source: Giourka, P.; Sanders, M.W.J.L.; Angelakoglou, K.; Pramangioulis, D.; Nikolopoulos, N.; Rakopoulos, D.; Tryferidis, A.; Tzovaras, D. (2019) The Smart City Business Model Canvas—A Smart City Business Modeling Framework and Practical Tool. Energies, 12, 4798. doi: 10.3390/en12244798

IRIS smart cities

Smart City - Business Model Canvas

Key Actors

Who are the smart city network key actors?
(Completed by the solution provider in collaboration with the City)

- *Actor 1 (city)*
- *Actor 2 (end-user)*
- *Actor 3 (core partner)*
- *Actor 4 (supporting partner)*

Who are the key suppliers?
(Completed by the smart city solution provider)

- *Supplier 1*
- *Supplier 2*
- *Supplier 3*

Key Activities

Which key activities are required to realize the value proposition (i.e. build distribution channels, customer relationships, revenue streams, build products/services/platforms, install equipment)

(Completed by each actor involved in realizing the smart city solution)
Actor 1 (city):
Actor 2 (end-user):
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Value Proposition

What value does each actor delivers?
Which of the end users' problems is the smart city project helping to solve?
What bundles of products and services does the project offers to each end user?
Which end-users needs is the project satisfying? (i.e. performance, customization, price, getting the job done, cost reduction, risk reduction, accessibility, convenience/usability)
What are the respective target values/thresholds/KPIs to be reached?

(Completed by each actor involved in the smart city project creating value)
Actor 1 (city):
Actor 2 (end-user):
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Actor Relationships

Which type of relationship does each actor expect within the network?
Which ones are established?
How are they integrated with the rest of our business model?
How costly are they?

(Completed by each actor involved in realizing the smart city solution)
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Network Beneficiaries

Which target users is the value created for?
How the target users benefit from the value created and what are their needs?
What specific values each network beneficiary gets? (i.e. Community, business, research organizations, decision-making bodies/government and non-profit).

(Completed by the smart city solution provider in collaboration with each actor involved in realizing the project)
Actor 1 (city):
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Key Actors Offerings (*)

What offerings does each actor deliver? (i.e. technology, development of products/processes/services, R&D, Citizen Engagement)

(Completed by the smart city Key Actors in collaboration with the city)
Actor 1 (city):
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Key Actors Co-creation Operations (*)

Which key operations do the key actors perform? (i.e. sourcing of materials, systems's design, operation and monitor and impact monitoring of the smart city solutions, deliver value, city coverage and links to other stakeholders e.g. innovation hubs)

(Completed by the smart city Key Actors in collaboration with the city)
Actor 1 (city):
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Key Resources and Infrastructure

What key resources are required to realize the Value Proposition (buildings, vehicles, machines, systems, point-of-sale systems, and distribution, networks)
Our deployment channels?
Our actor relationships?
Revenue streams?

(Completed by the smart city solution provider in collaboration with the city)
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Data (*)

What data will be made available from the services designed?
To whom and under what conditions? Availability and types of Open Data (i.e. energy efficiency, climate indicators, traffic etc)

(Completed by the smart city solution provider in collaboration with the city and actors involved)
Actor 1 (city):
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Deployment Channels

Through which channels do our customers want to be reached?
How are we reaching them now?
How are our channels integrated?
Which ones work best?
Which ones are most cost efficient?
How are they integrating with the customer routines?

(Completed by the smart city solution provider in collaboration with the city and actors involved)
Actor 1 (city):
Actor 2 (end-user):
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Budget Cost

What are the most important costs inherent for each actor deploying a smart city solution?
Which key resources are the most expensive?
Which key activities are the most expensive?
What cost can be covered by each actor?
Is there opportunitiy for blending public funding with private financing? Which costs are covered by each mechanism?
(Completed by the smart city solution provider in collaboration with the city)
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Revenue Streams

For what value are the network beneficiaries really willing to pay?
For what do they currently pay?
How are they currently paying?
How much would they prefer to pay?
How much does each revenue stream contributing to overall revenues?
Which actors have revenues?
What are the non-monetary revenues?

(Completed by the smart city solution provider in collaboration with the city)
Actor 1 (city)
Actor 2 (end-user)
Actor 3 (core partner)

Environmental Impacts: Costs and Benefits

What is the ecological cost of the smart city solution? (i.e. Greenhouse gas emissions, land use, energy and water used)
What is the ecological benefit of the smart city solutions?
% of reducing energy consumption
% reducing the environmental footprint

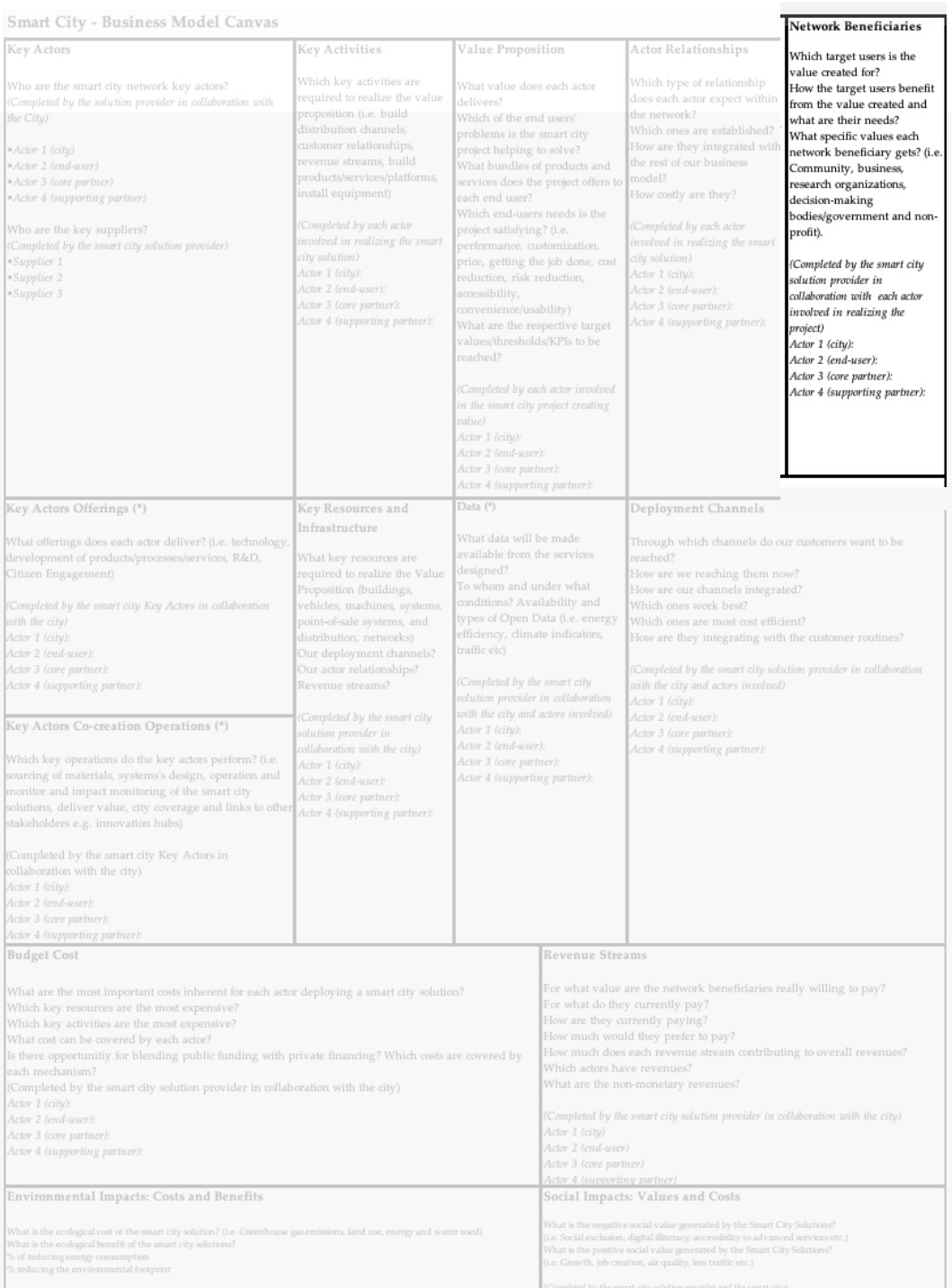
(Completed by the smart city solution provider and the smart city)

Social Impacts: Values and Costs

What is the negative social value generated by the Smart City Solutions?
(i.e. Social exclusion, digital illiteracy, accessibility to advanced services etc.)
What is the positive social value generated by the Smart City Solutions?
(i.e. Growth, job creation, air quality, less traffic etc.)

(Completed by the smart city solution provider and the smart city)

12+2 Building Blocks



Network Beneficiaries

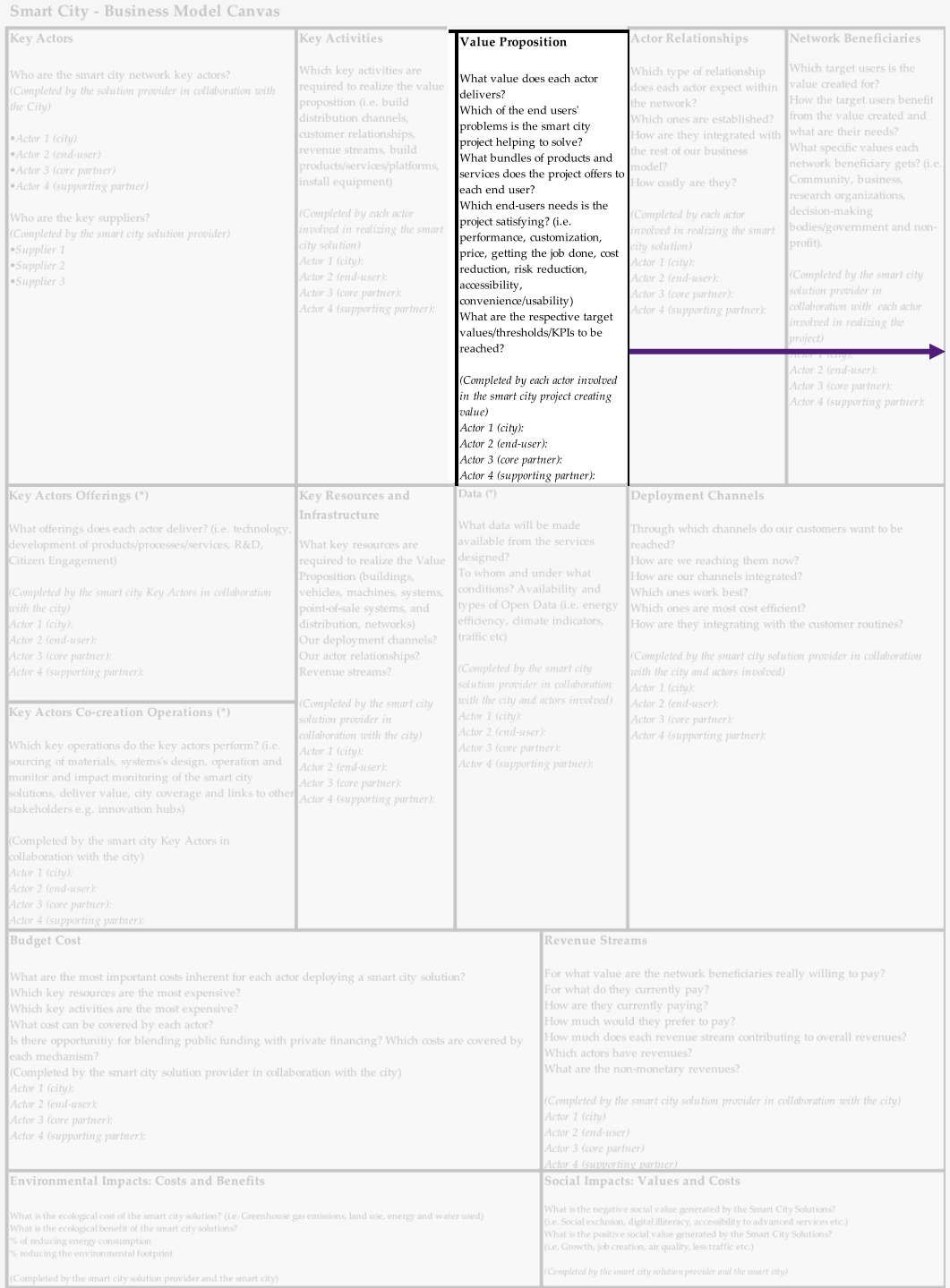
Which target users is the value created for?
How the target users benefit from the value created and what are their needs?
What specific values each network beneficiary gets? (i.e. Community, business, research organizations, decision-making bodies/government and non-profit).

Actor 1 (city): Less cars in the area, which fulfils policy goals. Possibly increased use of public transportation. However, from the municipalities perspective an integrated MaaS solution is not necessary. Mobility offerings by itself (not integrated into one platform) would also be a solution if certain criteria is fulfilled. Decisions about these criteria are made on a per project basis.

Actor 2 (end-user): Property Developers are an intermediate end user of this business model by purchasing mobility solutions from Trivector. There is a financial incentive, it's cheaper for them to build the MaaS solution compared to a car garage.

Actor 3 (core partner): EC2B obtains income and further expertise for their next projects. Possibly new connections, expanding the company network.

Actor 4 (supporting partners): Access to a bigger market by integration into the mobility offering. So far no fee is charged for participation in the project.



Value Proposition

What value does each actor delivers?
Which of the end users' problems is the smart city project helping to solve?
What bundles of products and services does the project offers to each end user?
Which end-users needs is the project satisfying? (i.e. performance, customization, price, getting the job done, cost reduction, risk reduction, accessibility, convenience/usability)
What are the respective target values/thresholds/KPIs to be reached?

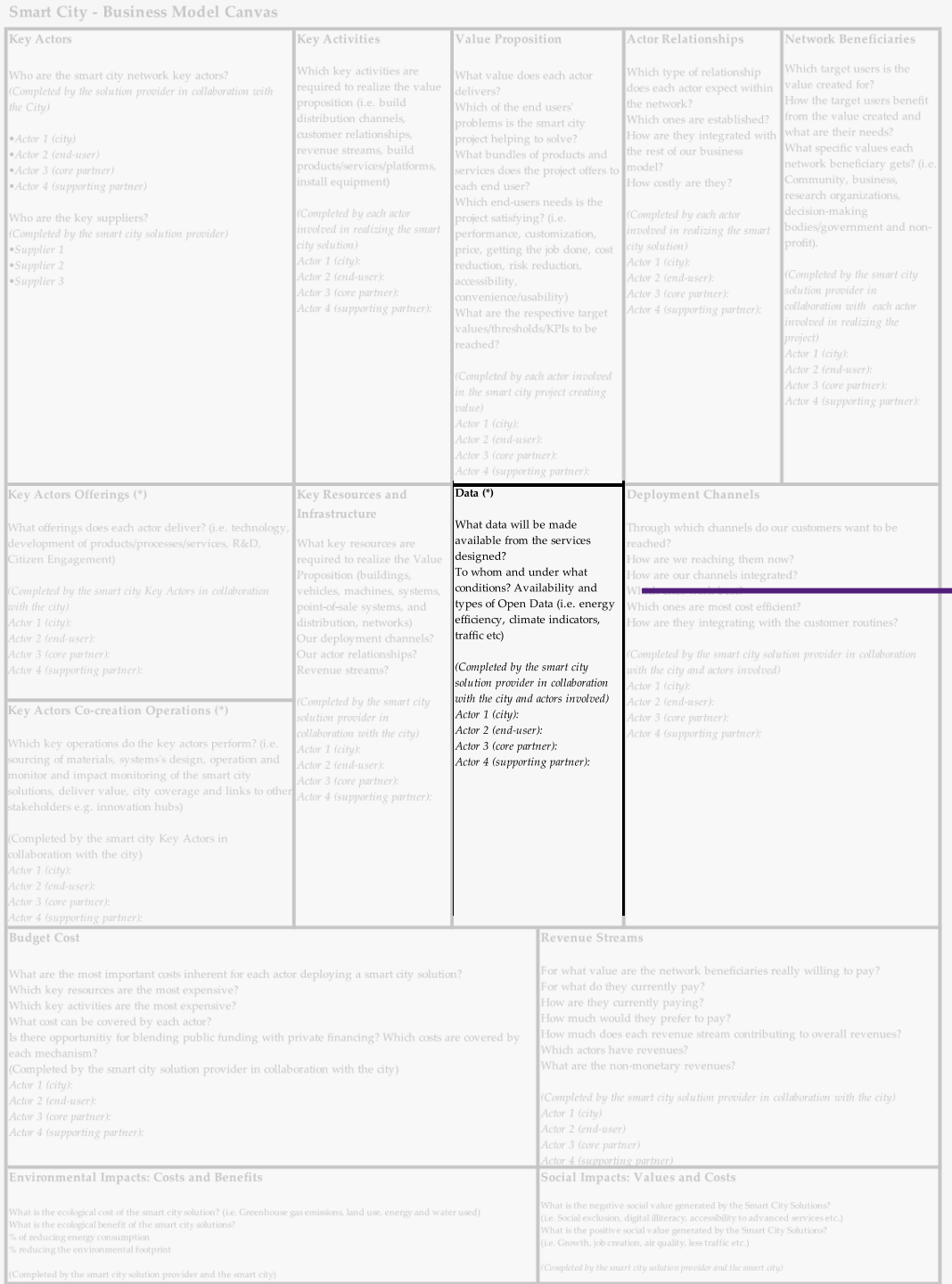
Actor 1 (city): reduce congestion, parking and emissions by reducing car ownership and increasing car occupancy.

Actor 2 (end-user): one-stop-shop platform to organize getting from A to B using a fitting transportation mode.

Actor 3 (core partner): integrates services on platform delivered to tenants/occupants, negotiates/lobbies for parking rebate

Actor 4 (supporting partner):
Property developers offer housing
Software developers build the platform
Service providers/public transport offer mobility solutions to tenants and link to platform

Data



What data will be made available from the services designed?

To whom and under what conditions? Availability and types of Open Data (i.e. energy efficiency, climate indicators, traffic etc)

Actor 1 (city): transparent parking norm rebate regulation

Actor 2 (end-user): data on travel, modality use and willingness to pay is disclosed via platform

Actor 3 (core partner): this data can be anonymised and shared upstream, but interviews gave no indication this is part of the package.

Actor 4 (supporting partner): property developers exit upon completion of the project unless they rent out, then data on rent, but not shared. Service providers collect and keep their own data. No data sharing agreements involved.

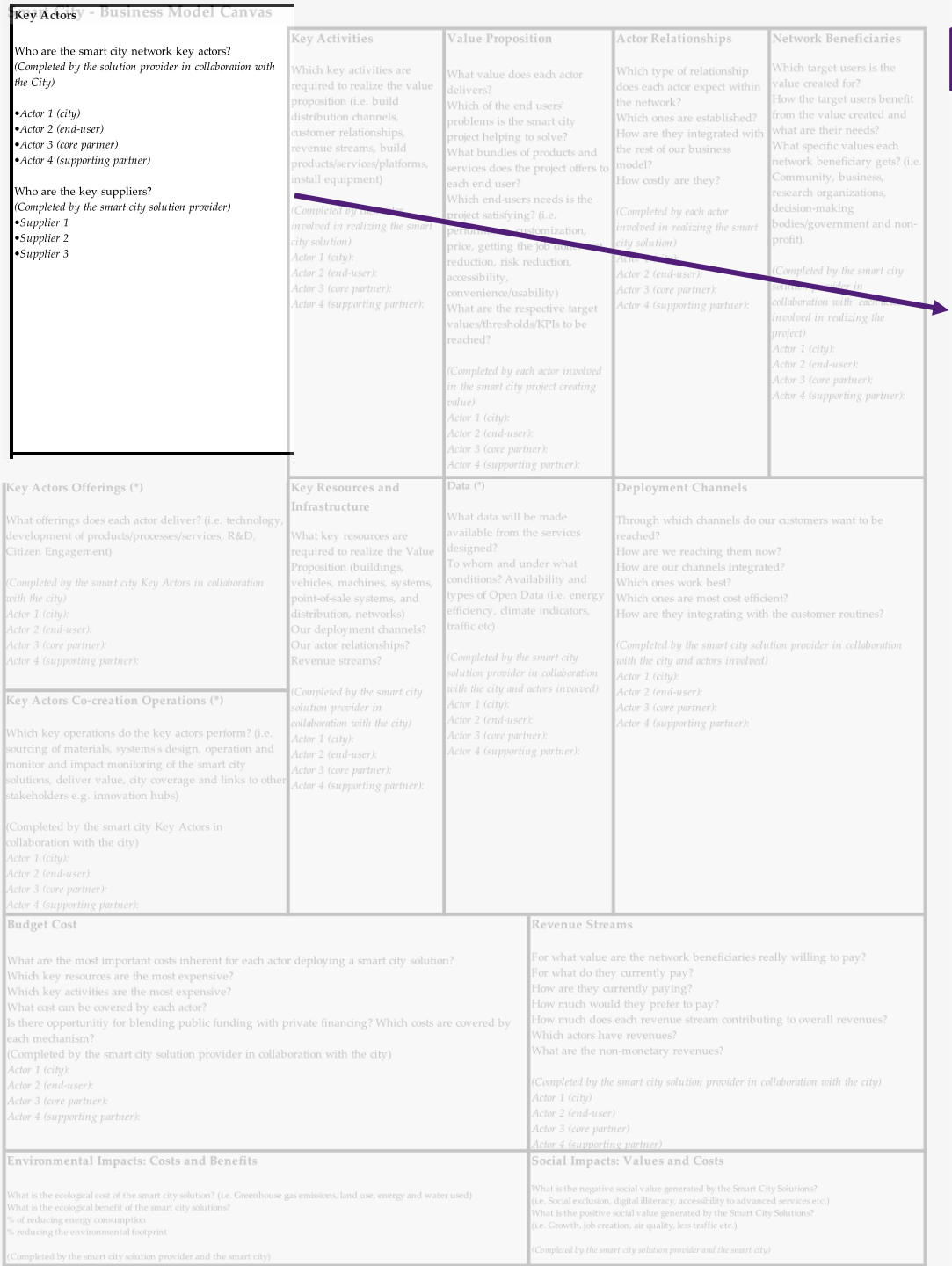
Deployment Channels

Through which channels do our customers want to be reached?
How are we reaching them now?
How are our channels integrated?
Which ones work best?
Which ones are most cost efficient?
How are they integrating with the customer routines?

Actor 1 (city): To date only webinars and seminars are mentioned. Cities communicate their intentions, then EC2B can pitch the idea of parking norm rebates in exchange for integrated MaaS with offer of housing.
Actor 2 (end-user): End-users are informed via website, flyers and information events organized by EC2B as part of package. Also communicate through property developers' channels. The complexity demands face-to-face contact.
Actor 3 (core partner): Organises information events for (prospective) tenants and keeps communication channels open after deployment (helpdesk). EC2B is contact point for end-users through platform.
Actor 4 (supporting partner): Do not communicate about EC2B

Break

Key Actors



Who are the smart city network key actors?

•Actor 1 (city): Goteborg/Lund/?

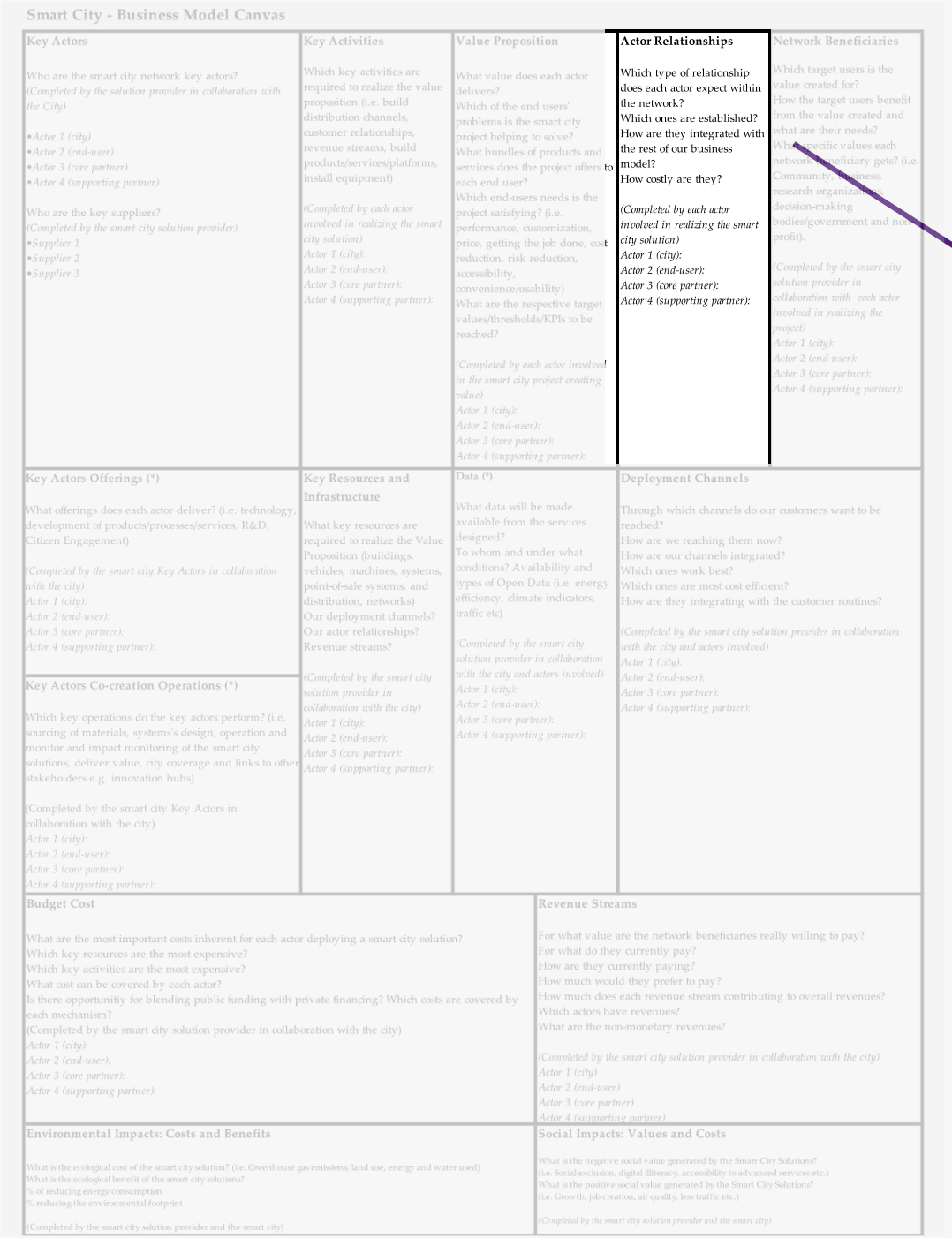
•Actor 2 (end-user): Property developers and tenants/occupants using the platform.

•Actor 3 (core partner): EC2B and Trivector

•Actor 4 (supporting partners): Service providers

Who are the key suppliers?

Supplier 1: Software Developers
Supplier 2: Service provider e-cars
Supplier 3: Service provider Public Transport
Supplier 4: Service provider e-bikes



Actor Relationships

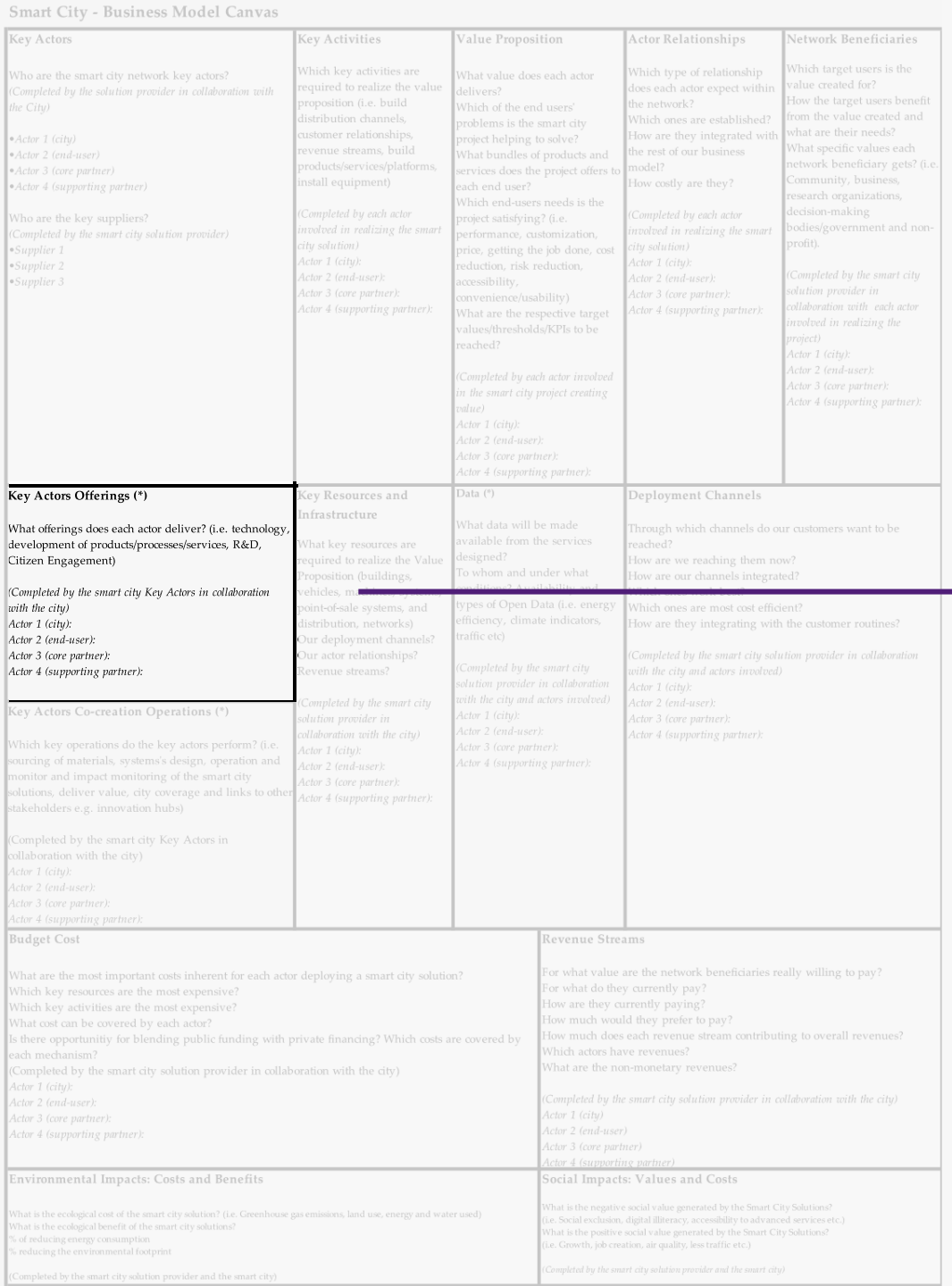
What type of relationship does each actor expect within the network?
Which ones are established?
How are they integrated with the rest of our business model?
How costly are they?

Actor 1 (city): City is linked to the business model directly and crucially. Without the parking norm rebate the business model is hard/impossible to implement.

Actor 2 (end-user): The tenants are (interestingly) not so involved and crucial in the network. As property developers argue, housing is scarce and tenants will self-select. They are marginal in the network.

Actor 3 (core partner): EC2B is the integrator. All network partners are linked through their platform and contracting goes through them, except when it comes to the (important) deal between property developer and city.

Actor 4 (supporting partner): See above. Service providers are linked to the network relatively loosely. In the past they have been changed. Public transport engages through resale agreement. Maintaining keeping network relations up to date is costly.



Key Actors Offerings

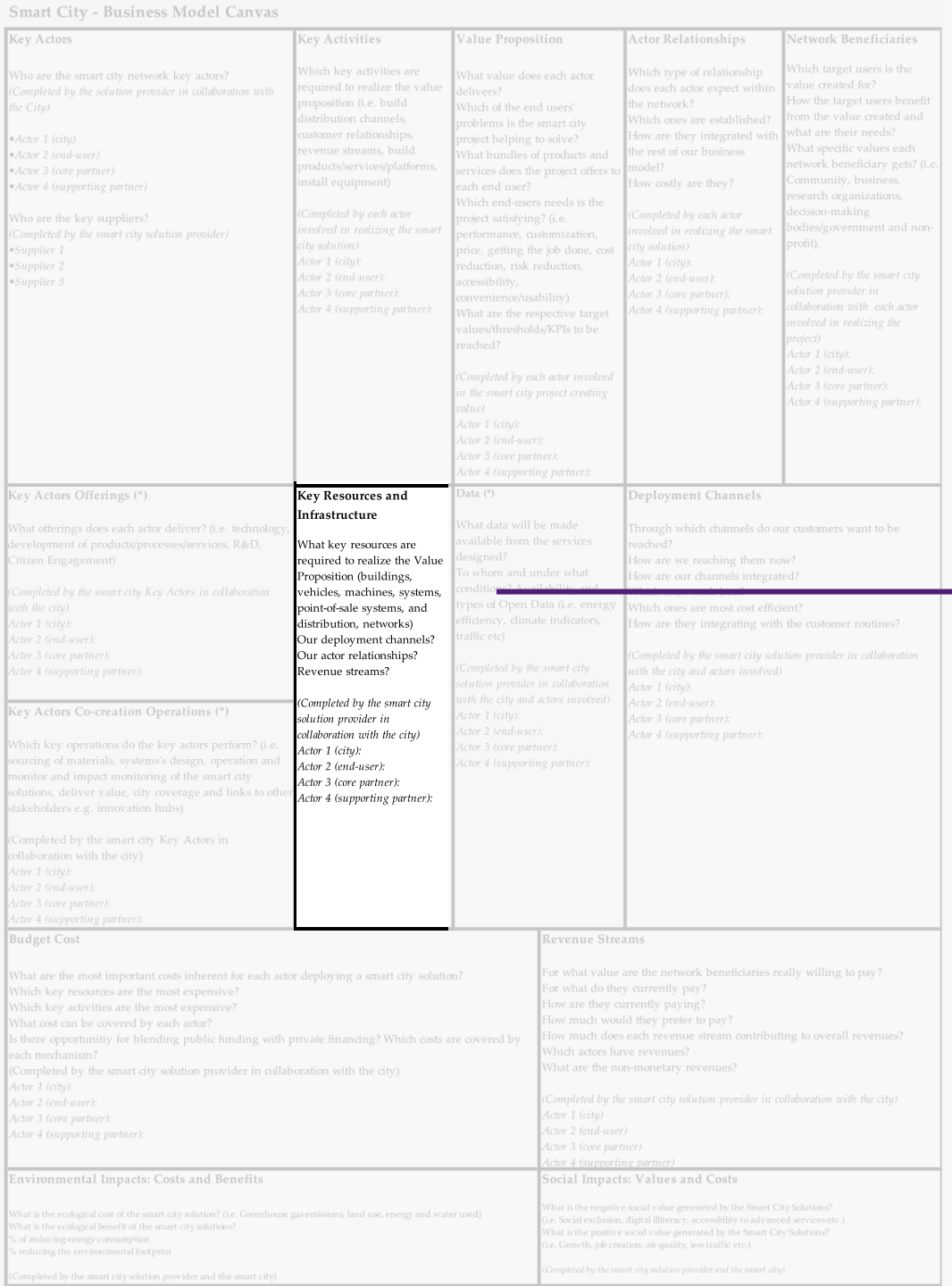
What offerings does each actor deliver? (i.e. technology, development of products/processes/services, R&D, Citizen Engagement)

Actor 1 (city): Support for the EC2B concept to be viable. Local authorities need to be supportive of the idea of exchanging parking lots for a MaaS. In this case a policy-based innovation was neccessary.

Actor 2 (end-user): Willingness to pay for the service. Some tenants are more likley to use new vehicles than others. In this case when using light e-vehicles there is a certain customer group that thinks the vehicles are "cool".

Actor 3 (core partner): Development of the EC2B application to be used was procured by Trivector within the IRIS project. However, the main focus of the EC2B demonstration in IRIS is not on the app or the ICT scheme behind it. Rather, the focus is on designing a service that responds to the needs all actors involved: end-users as well as property developers and transport service providers, in order to find a working business model.

Actor 4 (supporting partner): Development of the housing complex, focusing on solutions to integrate MaaS and other offerings for new tenants.



Key Resources and Infrastructure

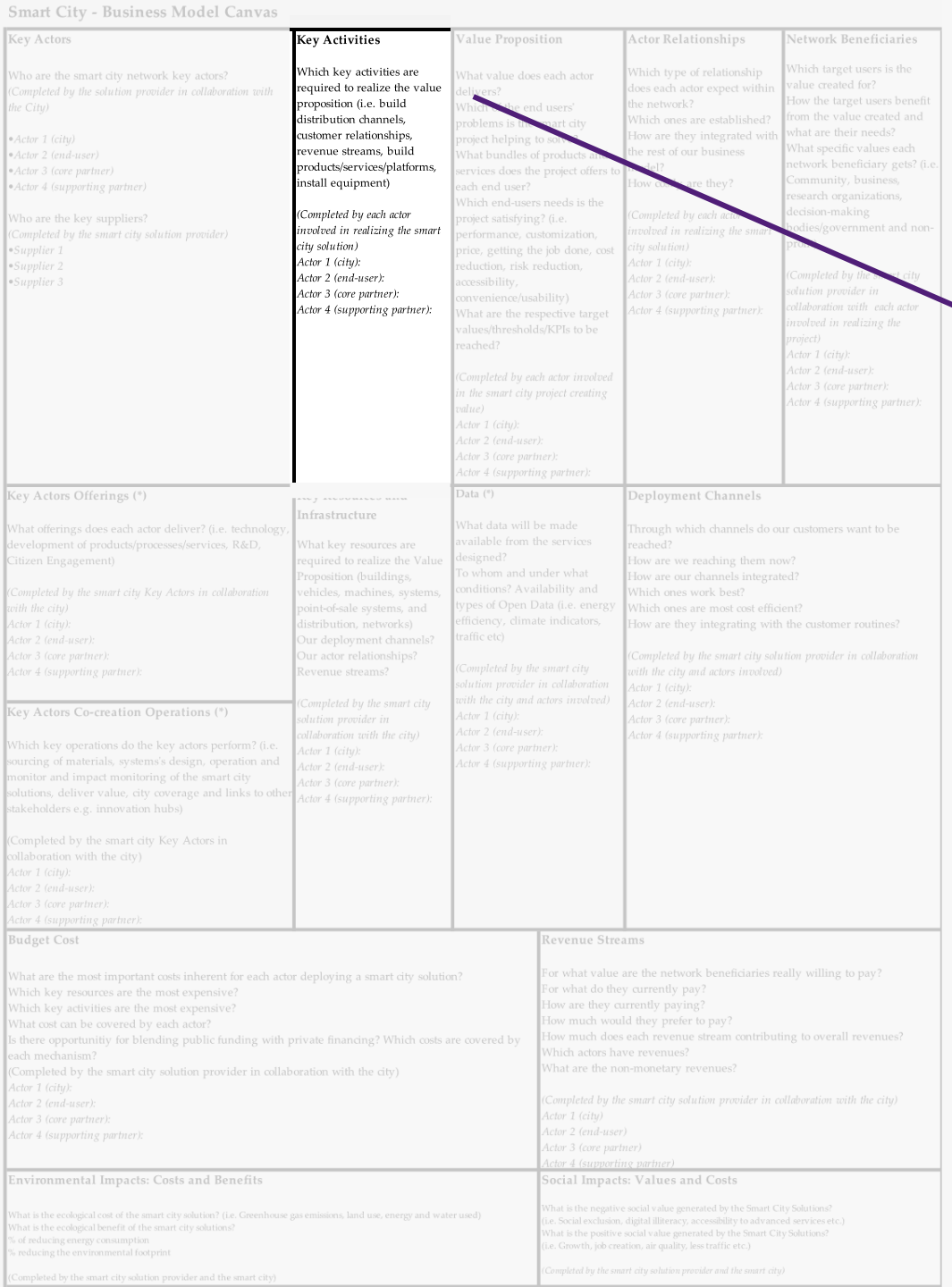
What key resources are required to realize the Value Proposition (buildings, vehicles, machines, systems, point-of-sale systems, and distribution, networks)
Our deployment channels?
Our actor relationships?
Revenue streams?

Actor 1 (city): density and extensive public transport infrastructure are required, coupled with a political ambition to reduce congestion and willingness and legal ability to change the parking norm for that purpose.

Actor 3 (core partner): The core partners needs to have credibility and trust among the extensive and complex network of involved partners. Interviewees mention importance of Trivector as respected traffic consultancy and importance of trusted EC2B employees.

Actor 2 (end-user): Cultural attitudes towards car ownership and willingness to experiment.

Actor 4 (supporting partner): A strong software developer is needed to integrate the services on the platform. Now the "platform" sends the user to the service provider website. More integration desirable. Also service providers take a rather arms' length approach now, but need to be present and willing to connect.



Key Activities

Which key activities are required to realize the value proposition (i.e. build distribution channels, customer relationships, revenue streams, build products/services/platforms, install equipment)

Actor 1 (city): In the use of the solution offered by EC2B there is no role for the city. But in the property development stage the city needs to negotiate the parking rebate and in doing so suggest or even require the property developers to use (a service such as) EC2B.

Actor 2 (end-user): Interestingly, the end user is not involved until all the deals have been made. The user uses the services through the platform, which, if it operates smoothly, does not involve further activities except maintenance and explaining the service to new users.

Actor 3 (core partner): EC2B needs to connect all partners in this complex web of interrelationships that, in addition, spans several years. This highly complex and idiosyncratic network building activity is hard to describe in specifics.

Actor 4 (supporting partner): The software developer needs to develop and maintain a platform that multiple MaaS service providers can offer their services upon. This will involve frequent updating and maintenance to ensure compatibility.
The MaaS-service providers and public transportation see EC2B as an additional resale channel for their services and will not undertake activities to promote or ensure its continued operations.

Smart City - Business Model Canvas

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Budget Cost

What are the most important costs inherent for each actor deploying a smart city solution?
Which key resources are the most expensive?
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Is there opportunity for blending public funding with private financing? Which costs are covered by each mechanism?
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Revenue Streams

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How much does each revenue stream contributing to overall revenues?
Which actors have revenues?
What are the non-monetary revenues?

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Environmental Impacts: Costs and Benefits

What is the ecological cost of the smart city solution? (i.e. Greenhouse gas emissions, land use, energy and water used)
What is the ecological benefit of the smart city solutions?
% of reducing energy consumption
% reducing the environmental footprint

(Completed by the smart city solution provider and the smart city)

Social Impacts: Values and Costs

What is the negative social value generated by the Smart City Solutions?
(i.e. Social exclusion, digital illiteracy, accessibility to advanced services etc.)
What is the positive social value generated by the Smart City Solutions?
(i.e. Growth, job creation, air quality, less traffic etc.)

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Revenue Streams

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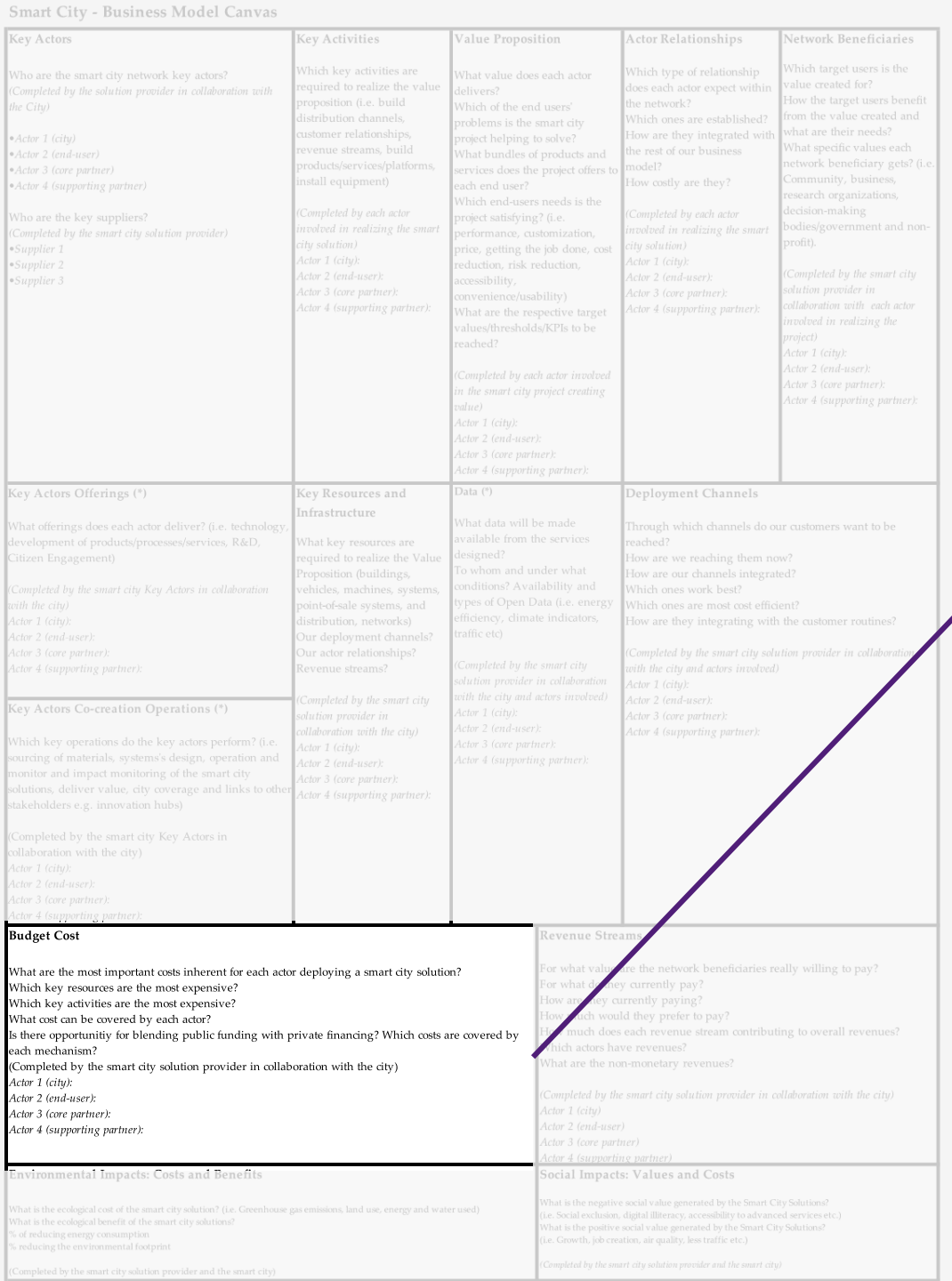
How much does each revenue stream contribute to overall revenues?
Which actors have revenues?
What are the non-monetary revenues?

Actor 1 (city): No revenue or costs accrue to the city.

Actor 2 (end-user): No revenue accrues to the end users. They pay for the services they book through the platform offered by EC2B, but not for the platform services.

Actor 3 (core partner): Currently the business model is "on steroids" and being subsidized in kind and cash by Trivector and IRIS. No revenue has been generated yet. Trivector envisions property developers paying something for EC2B service, as well as (commercial) MaaS providers.

Actor 4 (supporting partner): Property developers have been granted the parking norm rebates, such that their development costs have been substantially lower. In current projects none of that cost saving is turned into an out of pocket expense on EC2B services. Mobility service providers have their own revenue streams and do not (yet) pay for EC2B services either.



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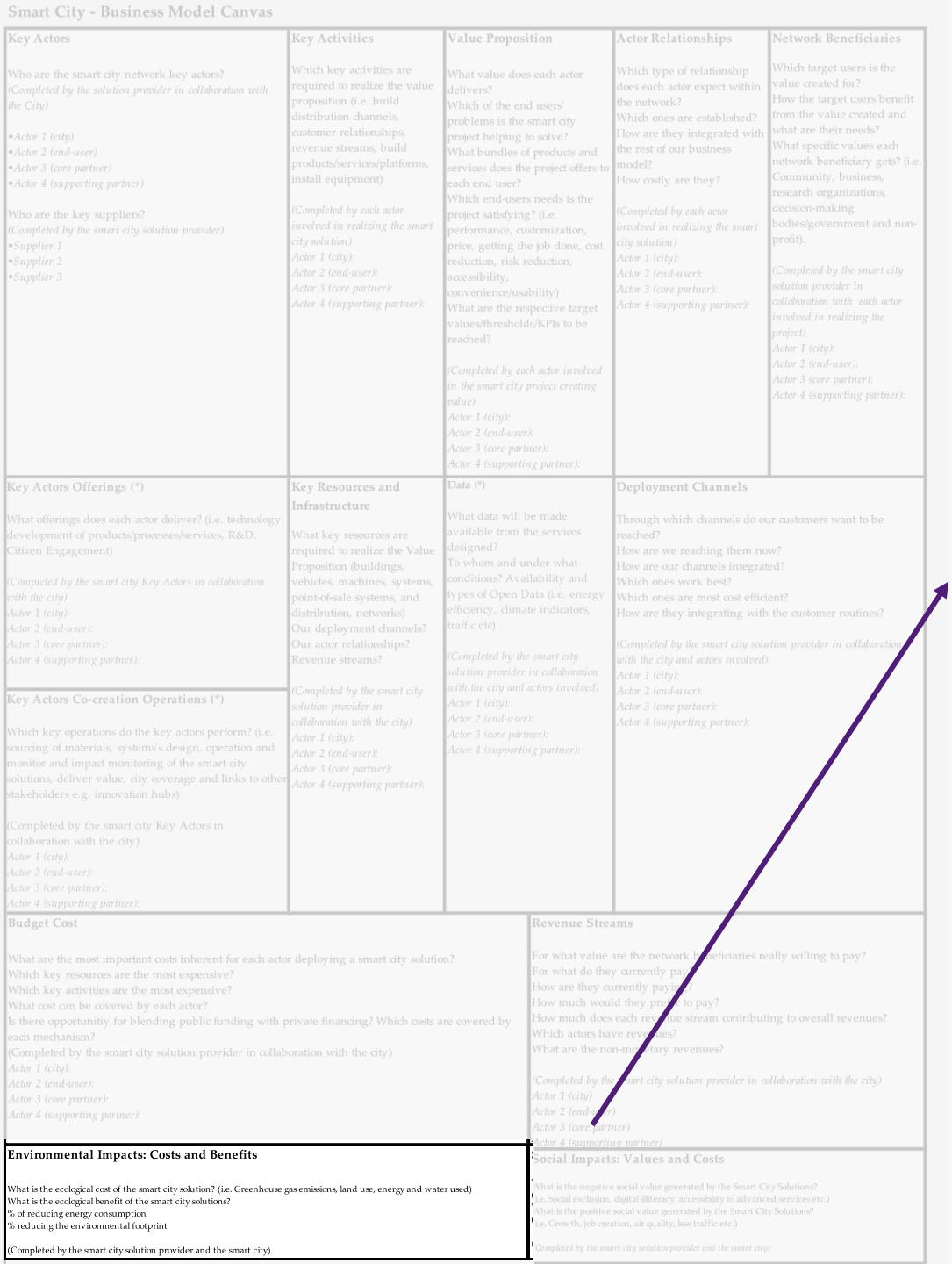
Actor 1 (city): Complementary infrastructure to make MaaS a possible solution for citizens, thereby providing a real alternative to car ownership. This means that cities who do not have a certain amount of infrastructure might not be able to integrate MaaS solutions effectively.

Actor 3 (core partner): Developing and integration the mobility solution. Payment for the maintenance of the vehicles? Very close connection to tenants providing mobility coaching.

Actor 4 (property developers): Building the development with the right infrastructure to provide the EC2B service. Building an underground garage is a very expensive endeavour in Sweden, so property developers are interested in forgoing the cost. Furthermore there are now incentives by the government to fund such projects (savings through car-free housing are about 90-95% of conventional parking requirements). Currently, property developers would be unwilling to pay if the service wasn't subsidized. Only once EC2B is proven to be self-sustaining business model, property developers would think it is worth the integration.



Environmental Impacts: Costs & Benefits

What is the ecological cost of the smart city solution? (i.e. Greenhouse gas emissions, land use, energy and water used)

What is the ecological benefit of the smart city solutions?

A previous study suggest that if 200 persons in the 132 apartments at Brf Viva join the car sharing service included in EC2B, their carbon footprint from transport can be expected to be reduced by 123 tons of CO2.

Current "green transformation" of the transportation sector does suggest that building more parking in new developments might be very wasteful.

Social Impacts: Values & Costs

What is the negative social value generated by the Smart City Solutions?

(i.e. Social exclusion, digital illiteracy, accessibility to advanced services etc.)

What is the positive social value generated by the Smart City Solutions?

Direct and measurable: less traffic, improved air quality, less reliance on your car. Some tenants gradually give up their car after living in the housing complex for a while.

Indirect: social inclusion and community of sharing. Unfortunately, community of sharing is not really happening as planned.

Pilot for the "housing of the future". The property developer does think pilots like these are an important part of transitioning towards different modes of transport.

Replicability

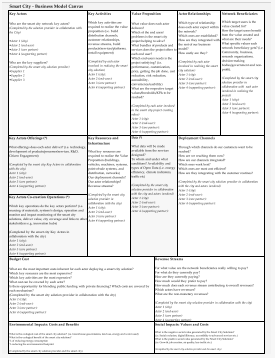
What are the elements that can / cannot be replicated outside the case study area?

Replicability Considerations

- Technical
- Financial & Economic
- Regulatory and Administrative
- Social (with specific attention to stakeholders' uptake issues)

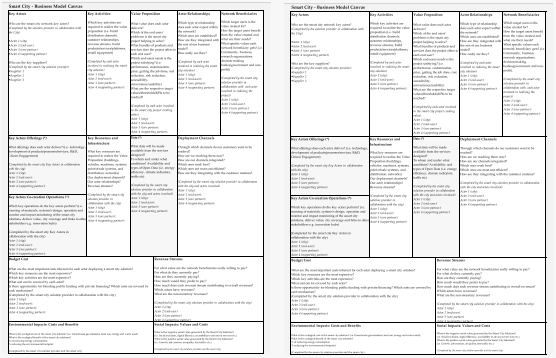
Why use the SC - Business Model Canvas?

Map Existing Business Models in a Smart City Context



Visualize and Communicate your SC-BM

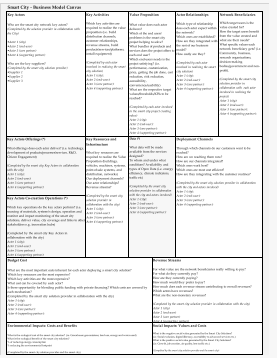
Design New Business Models



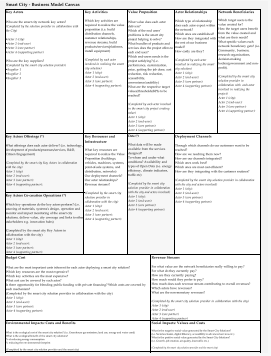
Use the SC-BMC to explore new business models applicable to smart cities

Manage a Portfolio of Business Models

Explore



Exploit



Use the SC-BMC to identify collaborators in a SC context and easilty move between “Explore” and “exploit” business models

Food for Thought

Which ways is the SC-BMC useful for you? How do you intend to use it within the framework of IRIS project or your future business activities?

IRIS

Smart cities

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