The Cluj-Napoca case : between accounting and accountability

The dilemma:

For the last couple of decades, Cluj Napoca has been a pioneering city in Romania when it comes to sustainable growth. As sustainability has become a major concern locally and nationally, Cluj-Napoca Municipality with its participation to the REFLOW project insisted in pushing forward its energy efficiency and Circular Economy agenda. Could the city's ambitious trajectory be interrupted or delayed and if so how municipal employees deal with such challenges?

The city:

- Brief history of Cluj
- Brief discussion of its efforts for sustainability and energy efficiency
- The energy market in Romania
- Cluj-Napoca in REFLOW
- Cluj-Napoca's master plan for energy efficiency

The story: Cluj-Napoca and data collection for energy consumption

- Public company (distributer)- accounting and accountability
- Private company (suppliers)- accounting and accountability
- Back to public company-solution

Conclusion:

The overall points is that there have been at least two challenges Cluj Napoca faced in the collection of consumption data for its program on energy efficiency. Accounting and accountability systems and frameworks posed a hurdle and delayed the efforts of Clujs' Municipality for some time. Nevertheless, a compromise and understanding has been achieved allowing Cluj-Napoca to continue its course towards a sustainable future.

Potential discussion points:

- Accounting and accountability in sustainability
- Public and private organizations
- The role of local and national organizations in sustainability

Summary

Cluj-Napoca is an emerging and ambitious Romanian city participating in the Horizon 2020 REFLOW project. In line with REFLOW's main goal to support Circular Economy practices in urban areas, the Municipality's Action Plan, focuses on reversing the city's increasing energy consumption and waste by introducing more efficient and circular solutions in electricity usage. With the help and support of a wide range of public, private, and societal stakeholders, the Cluj-Napoca pilot city aims at raising awareness among citizens as well as offering a replicable sustainable model on energy consumption to be followed locally and beyond.

The City of Cluj-Napoca

Cluj-Napoca is a city located in the north-western part of Romania 450 kilometres northwest of Bucharest. It is the capital of Cluj County and the unofficial capital of the historical province of Transylvania. The city has more than 300,000 inhabitants, while the broader metropolitan area of Cluj-Napoca accounts for 392,000 people thus making Cluj-Napoca one of the biggest cities in Romania.

Cluj-Napoca's background on sustainability and energy efficiency has not fallen short lately. While most of the initiatives related to energy efficiency and consumption take place at the national level, Cluj-Napoca, not only sought to tie-in with these national programs but also took additional initiatives at the municipal and metropolitan level. In 2011, for example, Cluj-Napoca became a member of the Covenant of Mayors (CoM), the world's largest movement for local climate and energy actions. The CoM is concerned with action at the local level within the competence of the local authority. Within this framework, Cluj-Napoca committed to reduce energy consumption and emissions. The plan and actions to achieve this objective were described in the Sustainable Energy Action Plan (SEAP) whereby the city of Cluj-Napoca agreed to cut off energy consumption and greenhouse emissions by 20 percent by 2020 as compared to 2011 levels. Similarly, under the SEAP, Cluj-Napoca agreed to increase the share of renewable energy by 8 percent. The SEAP includes interventions in the energy consumption and sustainability of buildings and infrastructure, e-administration, transportation, local electricity and heating production, internal organisation, communication and cooperation of citizens and stakeholders, and public procurement. Continuing its efforts towards more efficient energy consumption, Cluj-Napoca, joined in 2019, the E.U Horizon 2020 project REFLOW.

Cluj-Napoca – a REFLOW Pilot City

The research project REFLOW sets out to offer a new approach to circular economy (CE) in urban areas. The vision of REFLOW is to develop circular and regenerative cities through the re-localisation of production and the re-configuration of material flows at different scales. More specifically, it will use Fab Labs and maker spaces as catalysts of a systemic change in urban and peri-urban environments, which enable, visualize and regulate "four freedoms": free movement of materials, people, (technological) knowledge and commons, in order to reduce materials consumption, maximize multifunctional use of (public) spaces and envisage regenerative practices. REFLOW will provide best practices aligning market and government needs in order to create favourable conditions for the public and private sector to adopt CE practices. Active citizen involvement and systemic change are needed to re-think the current approach. Concretely, REFLOW will create new CE business models within 6 pilot cities: Amsterdam, Berlin, Cluj-Napoca, Milan, Paris and Vejle and assess their social, environmental and economic impact. In each of the pilots, citizens will be involved in developing and testing circular products, blockchain / distributed ledger technology, and governance models for their own city. REFLOW's ambition is to offer tools and guidelines that other cities can adopt in order to become circular, regenerative, and reach the 2030 Sustainable Development Goals.

In REFLOW, Cluj-Napoca will be focusing on energy, its consumption evolution and the impact of investments made in energy efficiency. Since national legislation regarding energy is out of reach for Romanian local authorities, the City Pilot will leverage on both the Integrated Strategic Plan and the National Energetic Strategy for 2030, which, among others, sets energy related strategic objectives. Within REFLOW, CLuj-Napoca has set the following goals:

- to prove how the measures taken to date have impacted the energy efficiency of selected buildings and involve the identified stakeholders in implementing and furthering those measures;

- to disseminate the information gathered at household and business level; to encourage different actors in the ecosystem to propose new ideas regarding renewable energy sources to be integrated in the city's strategy for a circular economy.

Cluj-Napoca's Action Plan starts from the exploration and mapping of the energy production and consumption in the city itself. In particular, the Cluj-Napoca pilot is interested in gathering data about electricity consumption. In order to do so, energy producers and providers have been

approached and asked to provide the necessary data regarding energy consumption in the city of Cluj-Napoca. These data will be further analysed to either confirm the effectiveness and efficiency of current energy related measures in municipal buildings and public lighting system or to set up new ones. As one of the team members from the Cluj-Napoca Municipality puts it:

> *'One of the scenarios is to test some products that these companies are developing now regarding energy efficiency, smart home, smart cities, to monitor energy consumption and increase energy efficiency.'* (Interview, Cluj-Napoca pilot team)

This case study concerns the challenges the Cluj-Napoca team faced so far in pursuing their goal. In particular, the case focuses on the challenges and choices the Cluj-Napoca team dealt with from engaging with public and private distributers and suppliers of energy in Romania. The main challenge refers to the obstacles accounting systems and accountability frameworks create to innovative and sustainable solutions at the city level.

The story

For Cluj-Napoca's Pilot to achieve its objective of improving energy efficiency consumption, relevant data must be collected. While these data are available, manual collection renders the whole process inefficient, costly and time-consuming. The required for the people of the Cluj-Napoca pilot is to establish an automated protocol to collect energy consumption data automatically.

> 'Within REFLOW we are trying to establish a system that automatically transfers data on energy consumption. Data transfer is possible right now but only manually by reaching out to the energy Distributer company. However, this is a very consuming and very slow process. What we are trying to do is to establish an online protocol that should allow us to get data directly from the energy distributers to one of our servers and then have this data set available to the open data platform our IT partners are working on.'

Energy consumption data can be retrieved from the 'distributor' company. Following the EU requirements for the liberalization of the energy market, the Romanian energy sector and in particular the electricity market includes two major actors; the 'Distributor' company which is state-controlled though partly privatised, and the 'Suppliers' or producers which are mostly private companies following and adhering to European Union requirements. The distributor company is central to the Romania electricity market because it operates the energy grid,

possesses the metering system and produces the primary consumption data. The 'suppliers' are the companies which actually fill in the energy pool of Romania with energy produced from a variety of conventional, nuclear, or green resources. The distribution company then is responsible for operating the grid by distributing energy from the pool to the end users one of which is the Municipality of Cluj-Napoca.

End users contract with the suppliers for access to electricity. The Cluj-Napoca Municipality for example has signed a contract with one of the energy supplier companies and not the distributor. Depending on the price and offers of each one of the many supplier companies it is common in Romania that end users may switch from one supplier to another to save money. For the suppliers to be aware of the cost and provide the consumption bill to end users consumption data of each consumer are required. These data are produced by the distributing company as the sole operator of the grid. In other words, the distribution company as the operator of the grid is required legally to provide the consumption data to the supplier companies so they can charge their customers for electricity consumption. These are the data the Cluj Napoca Pilot seeks regarding the Municipality's consumption to automatically and regularly recover for its action plan within REFLOW to succeed.

With this goal in mind the Cluj-Napoca team reached out to both the Distributor and Supplier companies in order to get access to consumption data. The first attempt was to send out a formal letter and request for access to the energy consumption data to the distributing company. The formal letter included information on the Municipality's goals and ambitions for sustainability and energy efficiency as well as a description of the REFLOW project Cluj Napoca has been part of, and also a justification of why these data are needed and in what form and frequency. It took around three weeks for the distributing company to respond yet informally. In particular, an employee of the distributing company called back to the Cluj Napoca team to confirm that the request had been received and at the same time collect more information about the request.

> 'he needed more clarifying. Of course he gave me a different phone number to reach out to one of his colleagues. I did that and I explained the situation to him too. And then it started…you know…the ping-pong started' (Marcel)

The result of this first communication was according to one member of the Cluj-Napoca team a ping-pong kind of situation where each respondent of the company would give them a telephone number to call to another office. This process of 'ping-pong' lasted for a few months and actually led the project to a dead end. No consumption data no project. The last person in

the ping-pong with the various offices of the Distributor company suggested that the Cluj-Napoca team should reach out to the supplier company the Municipality was currently under contract with for electricity. A new telephone number accompanied this suggestion.

The reply of the Supply company was initially that the Cluj-Napoca team should contact the Distributor company since they are the ones possessing the metering system and producing the primary data. Upon the insistence and explanation provided, the Supplier company accepted to provide the energy consumption data of the Municipality. The Cluj-Napoca team however soon found out that the data were organized in a way that was not so useful. More specifically, the data were disaggregated based on the 800 consumption points of the Municipality. These consumption points spread within the whole city of Cluj-Napoca and include, among other, the public lighting system and public buildings. Moreover, while there was access to consumption data through the supplier company, another problem was that the interface and IT system of the supplier company allowed the Cluj-Napoca team to retrieve data from just one consumption point at a time rendering the whole process time-consuming and counterproductive. In addition, such solution was not efficient in the long-term; as a public institution, the Municipality may choose another supplier for next year and then another for the year after the next and so on. These supplier companies most likely have and use different interfaces and IT systems, standards, procedures and require new agreements and understandings which would make the consumption data collection unsustainable as a practice in the long term.

Both options in acquiring the necessary data for Cluj-Napoca's plan proved inefficient. On the one hand, the distributer company with its old-style bureaucratic system rendered even basic communication impossible. Several months were lost in numerous efforts on behalf of the Cluj-Napoca team to find the responsible person with the right authority to accommodate the request. On the other hand, the supplier company was more flexible in responding to the request but ultimately offered a solution requiring too much effort for rather short-run benefits.

Realizing that even if the data from the supplier company were available it was rather difficult to be used in an efficient manner to achieve the objective, the Cluj-Napoca team turned again to the Distributer company. This time and in order to reach the people with authority to accommodate their request, they put forward a new double strategy. First, they mobilized connections in the distributer company in an effort to overcome its bureaucratic set up. Second, they mobilized also the status of the Mayor of the city who sent a formal request again in the Distributer company asking for collaboration and access to the city's energy consumption data.

The political pressure proved fruitful. Right after the Mayor's request and the simultaneous activation of various contacts, the Distributer company responded positively and agreed to at least participate in a working group. In the workshop representatives from the two parties would discuss how the request made by the Cluj-Napoca Municipality could be realized. As the coordinator of the Cluj-napoca team explained,

> 'And we just sat at a table to figure out the solution because it wasn't just a matter of meeting them, but rather to figure out how we could do this.'

In the workshop, the distributer company's representatives explained what the actual problem was preventing them from accommodating the request of the Municipality. In fact, it was a matter of accounting and accountability. The distributer's operation is regulated by legislation relevant to the operation of state controlled companies. This legislation does not oblige the distributer company to provide the data upon request to end users. The distributer company is obliged legally to provide data to the supplier companies so they can charge the end user but not on end users like the Municipality of Cluj-Napoca. This in turn creates an accounting and integrity problem for the distributer company; if they are not legally obliged to provide the data, then they cannot justify any cost related to such service especially considering, according to the distributer company representatives, that it creates a precedent. If they agree to provide access to the data once, they will be morally obliged to do the same for others which bears a cost not legally justifiable. In short, without a legal justification, the whatever cost deriving from sharing energy consumption data cannot be budgeted.

> 'The problem in state owned company is the fact that the legislation doesn't require them to do anything. So they don't. Don't do it because they cannot justify cost. And regarding public and private companies, the idea is that if they are not required to do it, they are not really keen on doing it because it means costs, because it means time, because it means resources that they are not a they are not really interested in that in spending. They're not really keen on spending. No. I think it's something like like this. They are not really rejecting the idea, but they're not treating it as a priority.'

The objective of the workshop between the Municipality and the distributer company sought to find a way to accommodate the Municipality's demand to get access to its energy consumption data, and also to do so without causing any cost to the distributer company. In a member of the Cluj-Napoca's team words,

> ‘So we have to figure out a solution to do it without generating any cost for them. We understood this was the conclusion’.

The answer to these challenges advanced by the Cluj-Napoca team is to identify the proper technological solution. This includes, on the one hand, an online protocol to ensure the secure transfer of data from both the supplier and distributer companies to an account accessible by the Cluj-Napoca team. On the other hand, and in order for this process to be fully automated and efficient, the purchase or development of an IT application is required. The application’s main function will be to automatically retrieve the energy consumption data of the Municipality as well as offer these in a workable format to the Cluj-Napoca team.

Conclusion

There has been a global and European trend towards more sustainable cities. The UN SDG 11 on Sustainable cities and communities for example pushes for making cities inclusive, safe, resilient and sustainable. In line with such trends, Cluj-Napoca participates in the REFLOW project to continue its successful trajectory in transforming the city into a circular, sustainable, and exemplar urban area. A major part of this transformation is energy efficiency. Cluj-Napoca is getting bigger and along with the increase in population, there is an increasing demand for energy to areas that go beyond the city centre. Access to energy consumption data is a necessary condition for energy efficiency and circular economy solutions not least for the Cluj-Napoca Action Plan within REFLOW. Energy consumption data will be used to check current measures and improve the efficiency of energy distribution and consumption when necessary.

However, as this case study highlights, the road towards the realization of the Cluj-Napoca pilot city has not been untroubled for the team running the project locally. The case study points to how established frameworks and systems of accounting and accountability may create impediments to the implementation of circular and sustainable solutions at the city level. In short, the main problems the Cluj-Napoca faced was, first, the bureaucratic and inflexible state-controlled Distributor company where employees had neither the authority nor the willingness to accommodate the request form Cluj-Napoca. Second, the limited ability of Distributor company to address the city’s request since any costs that would result from the cooperation could not be justified by the accounting systems and accountability frameworks under which the company operates. Currently, the Cluj-Napoca team is in the process of actually accommodating the request of the Distributor company for a solution which will not cause any costs to the company. As the leader of the Cluj-Napoca pilot argues,

‘But I'm really optimistic that we're going to find a solution until the end of the ye ar to grab that data. The good thing is that the data will not be lost. Even even if we we just figure out the solution at the end of the year, we’re going to be able to get past data with no problem and provide it to our partners inside REFLOW to m ake their analysis. So it is not a problem of losing data, but it is just the problem out the app.’

Primary objectives	Secondary objectives
• To test the effectiveness of the measures taken so far by the Municipality of Cluj-Napoca in improving the energy efficiency of buildings • To involve more external stakeholders in implementing similar measures • To disseminate relevant information to citizens and businesses • To promote innovative practices in the area of renewable energy at city level • To educate citizens and raise awareness on circular economy	• Improving quality of life • Saving economic and ecological resources • Improving cooperation with external stakeholders • Establish Cluj-Napoca as a 'lighthouse city' in Romania

Table 1. Primary and secondary objectives of the Cluj-Napoca pilot city. Source: REFLOW Deliverable 5.1.

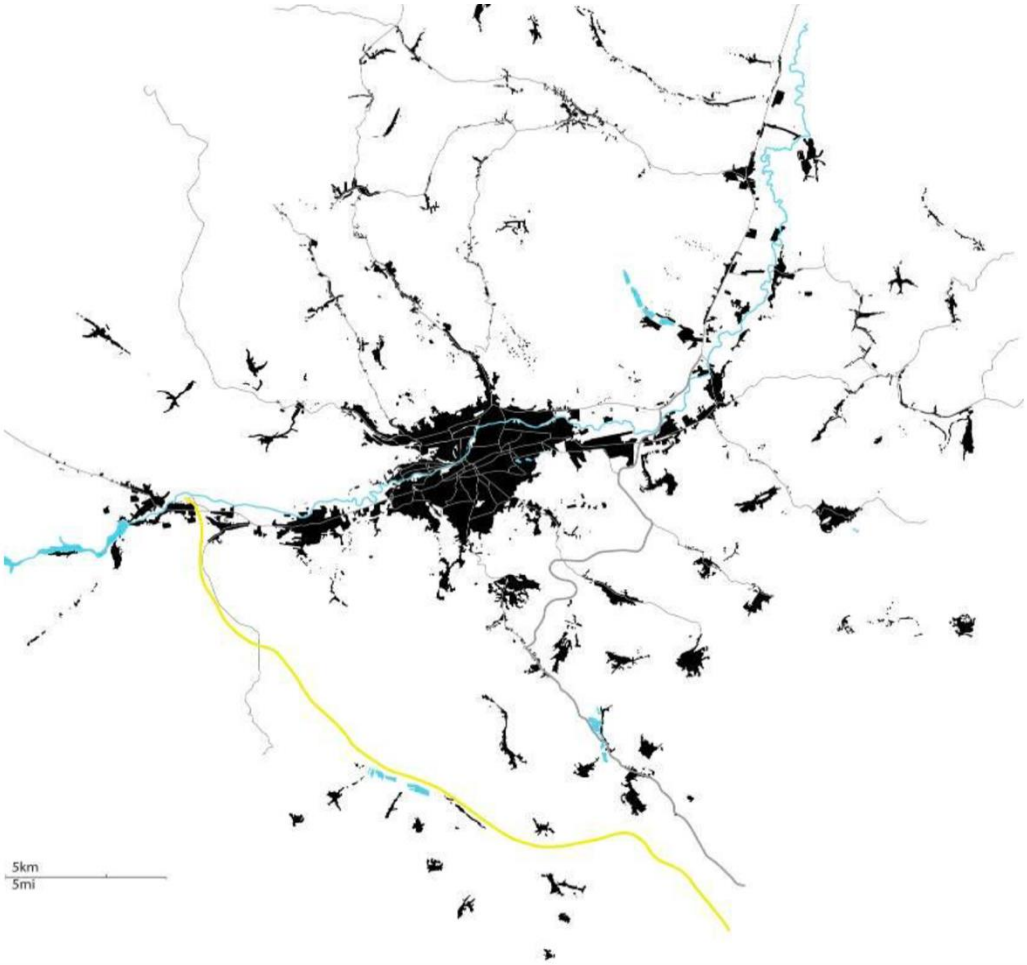

Figure 1. Cluj-Napoca's urban area. Source: World Bank Group (2013).