

How can we plan for the next major health crisis in Brussels?

[Building prospective scenarios: dealing with cat flu in 2040]

Sandrine Roussel, Grégoire Lits, Josua Gräbener, Lucie Carbon, Stephan Van den Broucke



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Key messages

The context of the Brussels-Capital Region means that it must be prepared for future health crises, particularly in terms of **governance** and taking into account the **diversity of its population**.

Individual health behaviours cannot be separated from the sociocultural and political landscape in Brussels and Belgium, or from civil society.

The preparation starts now.

The Pandorix project proposes five different scenarios. These are based on a combination of 21 variables that are intrinsic to managing and preparing for a major health crisis in Brussels.

Introduction/Summary of the problem

The COVID-19 pandemic laid bare the vulnerabilities of public health systems and of socio-economic systems in general. Although countries such as Belgium succeeded in limiting mortality and preventing economic collapse, it came at the cost of immense sacrifices by health care workers, infringements of individual freedoms and colossal public debt. However, according to the WHO, **similar crises are likely to recur in the years ahead. It is essential therefore to anticipate them as much as possible and to help systems and individuals to be more resilient.** One of the major challenges for public action in the event of an epidemic is to limit contamination (and mortality) rates while reducing measures perceived as unduly restrictive. It is a question therefore of **influencing health behaviours effectively yet democratically.**

By extending the results of work focused on the determinants of individual protective health behaviours in the face of highly contagious infectious agents during human-to-human contact, **our research has identified a series of factors on which policy and residents can act.** These factors are situated at all levels: institutional, infrastructural, communicational, socio-economic and psycho-social.

Still, it is tricky to estimate the combined effects of these factors on individual behaviours during a crisis. Based on qualitative surveys of residents, organisations and experts, the **Pandorix project** proposes a **prospective scenario exercise to highlight the key variables in the management of a health crisis in the Brussels-Capital Region.**

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Main scientific results of the project:

1. The different rationale for health behaviours

The first step in the prospective research process is to collect empirical data and diagnose the problem.

The Covid-19 pandemic **took less of a toll** on **certain countries and regions** (e.g. South Korea, New Zealand, Cuba, Vietnam, Sri Lanka, Thailand, Singapore, etc.). Climatic, demographic and geographical conditions go some way to explaining this variability in contamination and mortality rates. In addition, the whole world soon became familiar with the measures needed to limit the spread of the virus (e.g. washing hands, wearing a mask and social distancing). Consequently, these differences cannot be explained by the degree of awareness of the measures to be taken.

By contrast, **public support** for the recommendations of epidemiologists and politicians varied considerably. The study of these variations in terms of adherence to protective health behaviours offers an interesting explanation for the differences at the global level. Social and behavioural sciences can help us respond more effectively to pandemic situations.

We studied **protective health behaviours and their determinants** by distinguishing between **behaviours** prescribed by **governments**, **vaccination** and **self-directed behaviours**. The proposed analyses are based on the format of the **Canadian determinants of health model**. This model offers a systemic view of the factors influencing health behaviour (from the global context to the individual, through to systems and living environments).

Different factors have been identified which trigger a variety of behaviours among Brussels residents. These include not only the **crisis** itself, but the **interval between two crises**. **Different types of reasoning** have emerged, such as the need for scientists and politicians to be in agreement, the government's obligation to express its uncertainty, the importance of identical measures for everyone, the speed of change of the measures, consideration of the different types of health, the legitimacy of decision-making with or without public participation, variable spheres of influence in terms of health among residents and the need for the appropriate training, the need to live with risk or the possibility of adapting everyday life to cope with the unexpected.

In addition to a review of the literature, this empirical study serves as a basis for **identifying the key variables** described below, making it possible to describe the state of the health crisis management "system".

2. Modelling and plotting the crisis timeline using 21 key variables and three stages

The second stage of the prospective study is to identify the key variables of a democratic health crisis management system and health behaviours during a crisis.

The timeline of a major health crisis can be divided into three stages, each of which is described by seven variables. This gives 21 variables that will serve as building blocks for the five prospective scenarios proposed by the Pandorix project (see below). Each of the five scenarios presents a different arrangement of the variables and their effects on the behaviours of seven fictitious Brussels residents representative of the diversity of the population.

These 21 variables also represent actions that can be leveraged currently in anticipation of future crisis management.

The three stages of health crisis management are as follows:

- **1. Preparation**, described by seven variables that summarise the state of the pandemic management system before the crisis occurs.
- **2. Initial shock**. This is a period of extreme uncertainty during the first few weeks of the crisis. This period can also be summarised by seven variables which characterise the response of decision-makers in an emergency.

The prospective research method

Pandorix prospective research does not endeavour to predict the future, but to build scenarios that represent potential futures in order to improve how we **collectively prepare for the management of future pandemics in the Brussels-Capital Region**.

The **five fictitious scenarios** presented in this document were modelled using a conventional five-step prospective method:

Step 1: Define the problem (what are the challenges of managing a future pandemic?)

Step 2: Identify the key variables of the pandemic management system based on three elements: 1. **Conduct double group interviews with Brussels residents** and organisations active in the health sector (one on Covid-19, the other on future pandemics). 2. **Conduct interviews with experts** who were involved in managing the Covid-19 crisis or who have expertise in infectious diseases. 3. **Draft a report on the grey and scientific literature** on the question of the determinants of health behaviours during a health crisis, as well as on the variables of pandemic management systems.

Step 3: Develop five different narrative scenarios (15 narrative pages per scenario), presented in a separate document.

Step 4: Analyse the response to those scenarios by Brussels residents and the abovementioned organisations via focus groups.

Step 5: Refine the scenarios, presentation of the scenarios in visual and summary form, identification of the issues and compilation of signposts for action.

- 3. Deepening of the crisis over time and adaptation of measures to tackle the epidemic.

The following table lists the variables identified, which will serve as building blocks for future crisis scenarios.

Stage 1: State of the system pre-pandemic						
V1 Governance and links between levels of authority	V2 Dominant ideology	V3 Pandemic preparedness and risk anticipation	V4 Monitoring technology available	V5 Density and robustness of civil society	V6 Effective information system (media and government)	V7 Access to health care (funding, inequality, workforce, etc.)
Stage 2: Initial shock and first few weeks of the crisis						
V8 Ability to disseminate information to different communities	V9 Hospital capacity available	V10 Availability of a vaccine or treatment	V11 Availability of equipment (masks, etc.) and emergency logistical capabilities	V12 Network of existing partners that can be mobilised quickly	V13 Clear leadership	V14 Flexible and adaptive management capability
Stage 3: Deepening of the crisis over time – adaptation and proportionality of measures						
V15 Ability of decision-makers to listen to the views of different interest groups and be accountable	V16 Ability to gather information and monitor individuals and the pathogen	V17 Ability to manage pandemic fatigue, confidence and adherence to measures over time	V18 Capacity for technological innovation and knowledge creation	V19 Ability of experts and decision-makers to collaborate and manage and disseminate new knowledge	V20 Impact on quality of life and continued sociability (including impact on mental health and continuity of education and teaching for young people) (capacity for diagnosis and response)	V21 Social and economic impact (including the reorganisation of work and the impact on vulnerable groups) (capacity for diagnosis and response)

The final stage of the prospective study is the construction of narrative scenarios and formulation of the recommendations identified. These envisage different ways of reacting to a potential H5N1 flu pandemic (what we have termed “cat flu”) affecting Brussels in 2040.

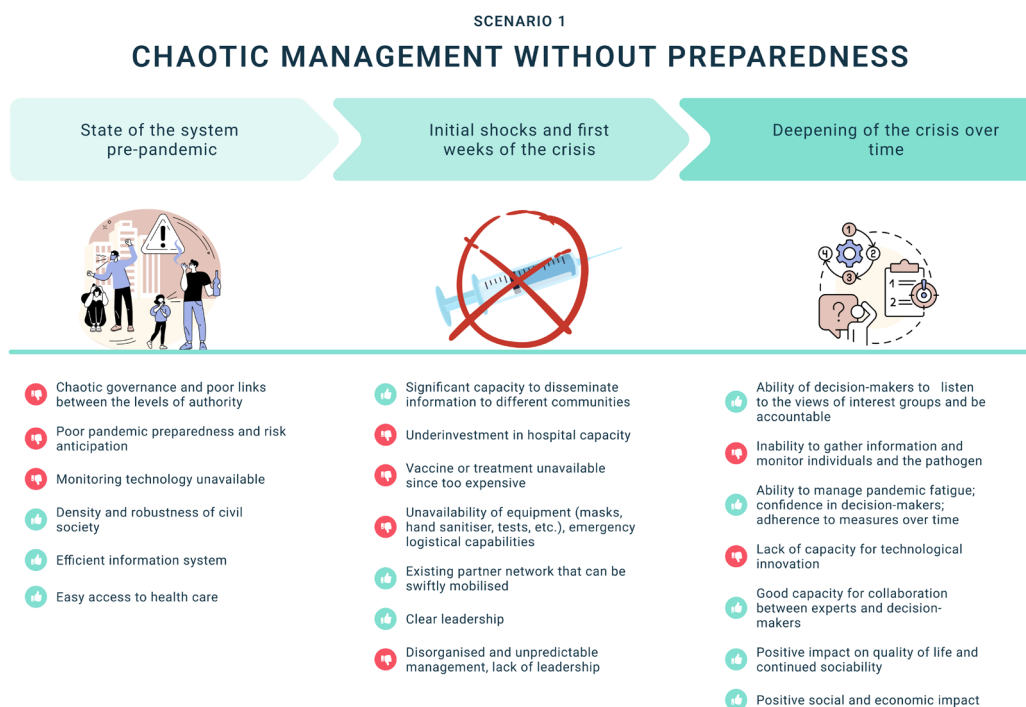
These scenarios are not intended to predict the future, nor to propose ideal visions of the future. Instead, the aim is to make decision-makers aware of some of the core aspects of pandemic management, as identified by the humanities and social sciences research that supports the exercise.

They highlight the importance of taking decisions today in order to ensure optimal preparedness of the Brussels-Capital Region in the face of pandemic risks and its management in a democratic setting.

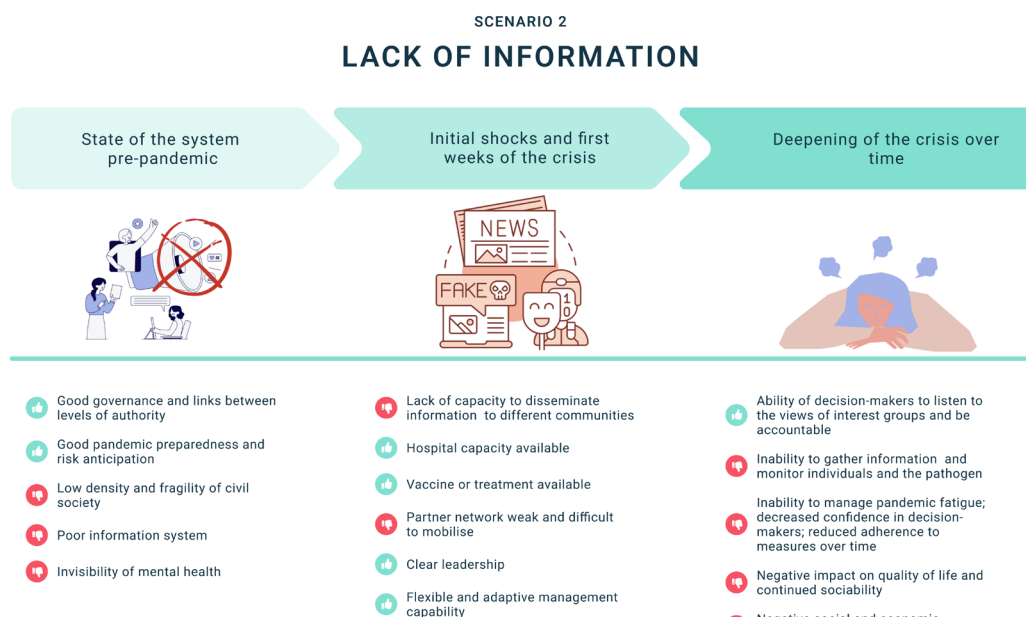
A summary of the scenarios and their constituent variables is shown below. A full version of the scenarios is available on the Pandorix-project website.

3. Five prospective scenarios: visualisation of the three stages of the 2040 crisis and status of the different pandemic management variables for each stage of the crisis (state of the system pre-pandemic, initial shocks and weeks, deepening of the crisis over time)

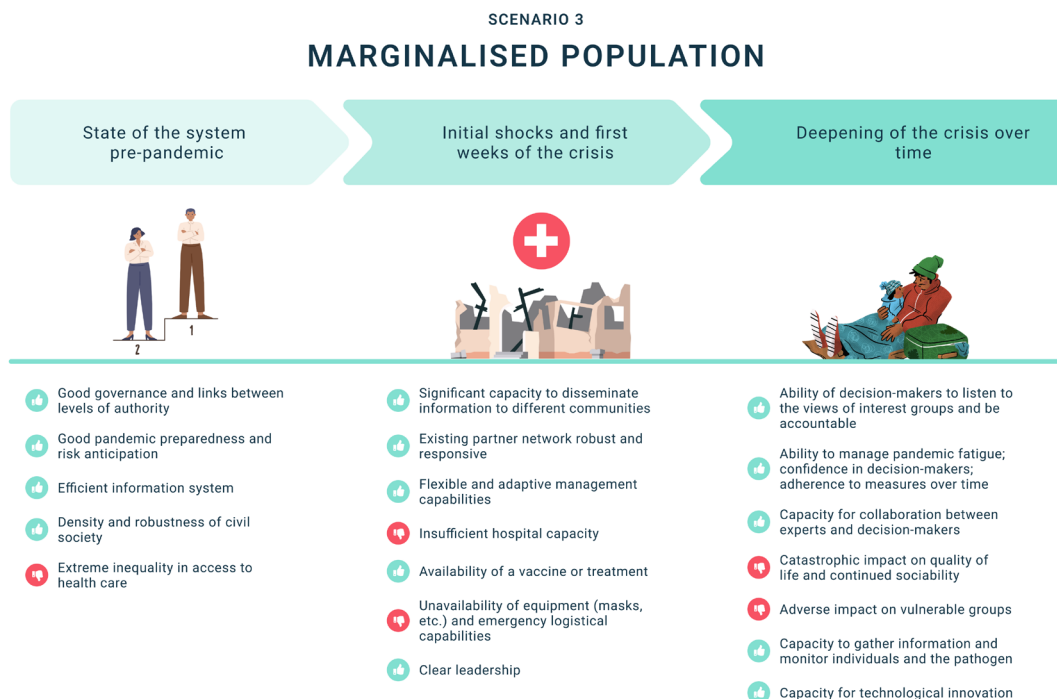
Scenario 1 highlights the cascading consequences of insufficient preparedness for the next health crisis, whether from an institutional, logistical or material point of view.



Scenario 2 emphasises the decisive role of disseminating quality information to bolster the capacity of the public to adopt the protective behaviours prescribed by the public health authorities.



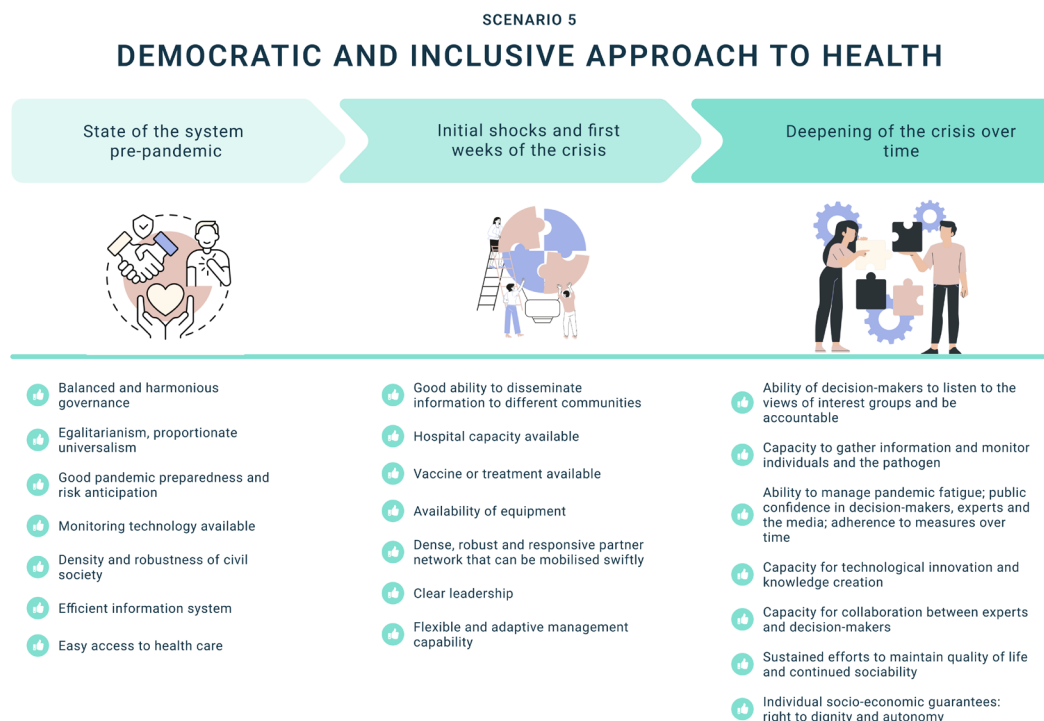
Scenario 3 illustrates how the worsening inequalities and marginalisation of the Brussels population magnify the devastating effects of health and social crises.



Scenario 4 reveals the limitations of authoritarian management (despite excellent technological capabilities), in particular due to the reduced adherence of inhabitants to public health measures.



Scenario 5 focuses on the beneficial effects of democratic consultation, inclusive communication and improvements to living conditions.



Recommendations

Each scenario focuses on different challenges inherent in pandemic management. On that basis, it is possible to make the following recommendations:

Scenario 1 - Chaotic management without preparedness

1. Clarify the responsibilities between the different levels of authority and administrations in the event of a crisis and as it unfolds.
2. Maintain a culture of health promotion and prevention at individual level (health education, sport, mental health, etc.) and at collective level (stockpile of protective personal equipment, further training in protective health behaviours, first aid training, etc.).
3. Appoint a scientific committee for pandemic monitoring and clarify its role in the event of a crisis (governance, communication, leadership).

Scenario 2 - Lack of information

4. Ensure that communication is inclusive (e.g. languages, information desks, use of intermediary organisations, etc.).
5. Foster a scientific and health-based culture (not reduced to virological and medical aspects) among the main information actors, including the general public.
6. Strengthen local networks of health and social care actors (organisations, institutions, etc.), with clearly defined responsibilities.

Scenario 3 - Marginalised population with poor health

7. Refinance the health care system: increase the number of beds, boost the appeal of the medical professions.
8. Reduce health care inequalities by facilitating access to treatment and prevention (including the promotion of sport) to improve public health.
9. Develop evaluation metrics other than morbidity and mortality directly related to the virus in humans (e.g. people injured during riots, people who lose their income, anxiety or depression score, number of suicides, rates of domestic violence, non-human victims, etc.).

Scenario 4 - Authoritarian approach to public health

10. Engage in dialogue with representative organisations to limit the stigmatisation of specific groups in times of crisis.
11. Introduce systems of public consultation in the meantime (surveys, referendums, etc.) which can be easily mobilised during a crisis.
12. Conduct a debate on the ethical use of new technologies. Do they foster individual well-being? Do they facilitate social exchanges or exacerbate inequalities?
13. Appeal to people's strengths (reinforcing their sense of self-efficacy, appealing to their critical sense) rather than inciting fear and feelings of guilt.

Scenario 5 - Democracy and inclusive approach to health

14. Promote and preserve the collective memory of past epidemics among the general public and institutional actors.
15. Develop local expertise and production capacity for masks, vaccines, tests, etc.
16. Conduct pandemic preparedness exercises (disaster plan) involving all actors, organisations and members of the public.
17. Prepare for potential crises by implementing generic response mechanisms that can be adapted to different threats and taking into account the occurrence of a possible polycrisis (several concurrent health crises, health and environmental crisis, health and security crisis, etc.).

Outputs from the Pandorix project

The results of the prospective study include details of the different outputs, available to decision-makers to enable them to consider efforts to prepare for the management of the next major health crisis as a public policy issue today.

These outputs are as follows:

- transcripts of the double interviews conducted with 13 focus groups composed of Brussels residents

- a research report and its synopsis on Brussels residents, aimed at highlighting variables analysed according to the Canadian model of health determinants

- an analysis report of the grey literature on management of the Covid-19 pandemic in Brussels

- the list and details of the variables of the pandemic management system

- the narrative version of the five scenarios (around 15 pages of narrative per scenario)

- a visual representation of the scenarios and their issues

- a white paper Abridged version of the scenarios (five pages per scenario) and supported recommendations

- a detailed report on the various pressures

Default version available at <https://www.pandorix.be/>. If not, please contact us at pandorix@uclouvain.be

DISCLAIMER:

This research was conducted with funding from Innoviris. Innoviris accepts no responsibility for the views, beliefs and recommendations expressed in this document, which are solely those of the authors.



Rationale for the Prospective Research project

The Brussels-Capital Region faces a host of major societal challenges which it must be prepared for. These include health and environmental crises, which radically question our modes of production and consumption; climate change, which affects our ability to live in complex urban spaces; and social and economic inequalities, which undermine the foundations of how we live as a society or how we address housing, planning, urban mobility and conservation issues. These contrast sharply with the practices and representations of what the Brussels-Capital Region should aspire to be.

These challenges can be seen as intersections: they do not boil down to a single component, but are intertwined with multiple causes, spheres, effects and actors with differing values, interests and viewpoints. There is no right or wrong answer, only solutions that are better or worse depending on the point of view ¹. Their fate is uncertain, future developments are unforeseeable and the long-term implications are considerable. These factors add to the complexity of governing our societies, which must contend with the issues of sustainable and inclusive development. Forecasting models, which predict the future using projections of historical data, become redundant during periods of relative instability, such as those we are currently experiencing, and cannot foresee what will happen in the longer term. We will witness a paradigm shift in our systems, without being able to fully predict the effects this will have ².

Prospective research emerged in the aftermath of the Second World War in France and has evolved to answer the political and social questions that remain relevant to this day: “a constant feeling that time is speeding up; recognition of the complete lack of certainty which fuels anxiety; the growing complexity of human problems due to the multiple interdependencies caused by globalisation; the almost infinite potential of technology, accompanied by increasingly dazzling promises, often disconnected from ethical concerns; a strong demand for reflection on the purpose of human action”³

In recent years, therefore, many countries have carried out robust, future-oriented studies to be able to act in an uncertain world. These developments include the Prospective Research for Brussels project, a pioneering funding programme in the Brussels-Capital Region. It supports prospective scientific research on the challenges facing major societies, analysed on a systemic, collaborative and multidisciplinary basis. Backed by scientific research, prospective studies are used to develop recommendations based on possible futures, using precise scenarios and narratives linking it all together. .

The aim of these recommendations is to examine the present and help regional actors navigate the fog of uncertainty and debate, to plan for the expected societal developments and to usher in the appropriate changes, freeing them from the more immediate demands of crisis management with particularly costly environmental, social and economic consequences. Prospective research invites us to “reclaim the future, individually and collectively, and to become the joint architects of a future we have chosen, rather than the victims of a future imposed on us”⁴.

1 Cf. thèse de doctorat d'Aurore **Fransolet** (2019), « Knowing and Governing Super-Wicked Problems: A Social Analysis of Low-Carbon Scenarios. Cf : <https://2100.org/wp-content/uploads/Synthese-these-Aurore-Fransolet.pdf>.

2 **Jean-Pierre** Laurent et **Monnet** Éric, « Manières de dire l'avenir sans nier l'incertitude : de l'économie aux sciences du climat. Entretien avec Michel Armatte », *Tracés. Revue de Sciences humaines* [En ligne], 24 | 2013. URL: <http://journals.openedition.org/traces/5671>.

3 **Durance** Philippe (sous la dir.), *La prospective stratégique en action*, 2014, Odile Jacob.

4 **De Jouvenel** Hugues, *Invitation à la prospective*, Futuribles, 2004. En ligne : http://www.lapro prospective.fr/dyn/francais/memoire/texte_fondamentaux/invitation-a-la-prospective.pdf