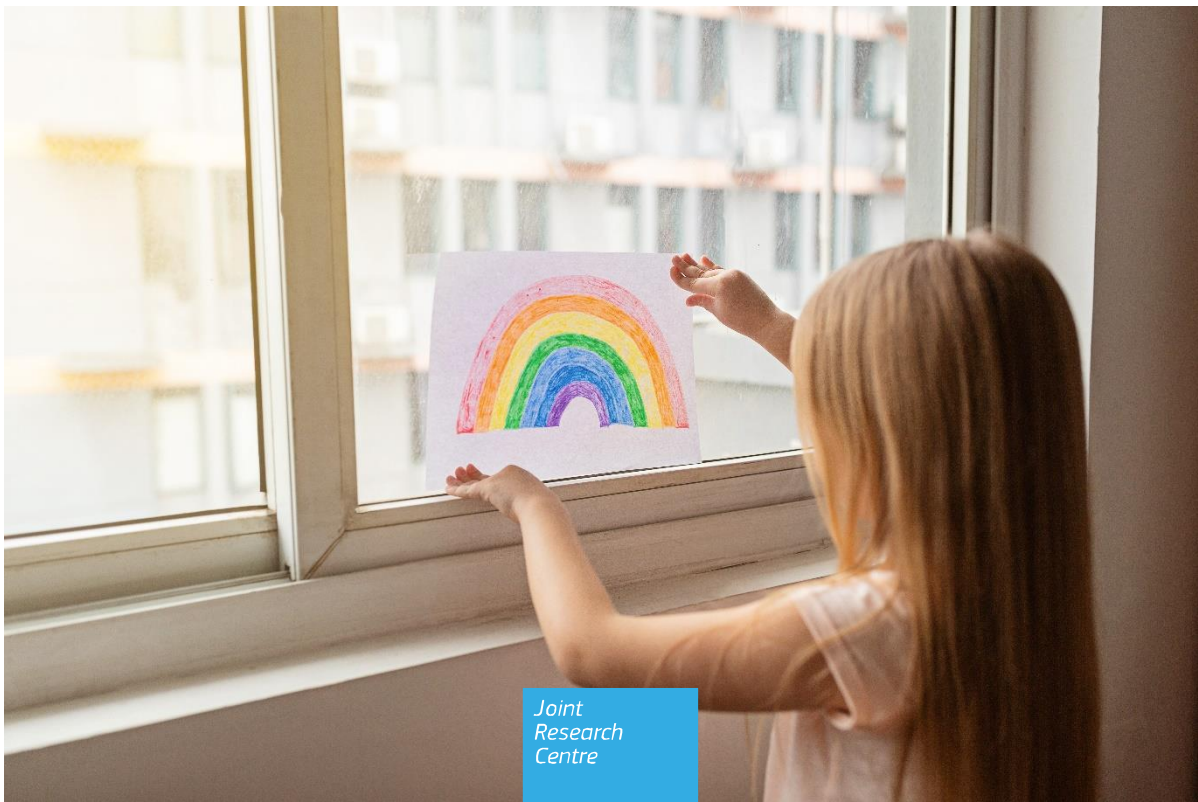


# JRC SCIENCE FOR POLICY REPORT

## Time for transformative resilience: the COVID-19 emergency

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## Executive summary

The current COVID-19 emergency seems to be warning governments worldwide that new crises of unforeseeable nature are likely to emerge, as the combination of environmental degradation, societies with increasing inequalities and deep economic interconnections have made the world more vulnerable.

In these circumstances, ensuring **the resilience of our society is crucial**. We need to be able to face shocks and persistent structural changes in such a way that **societal well-being is preserved**, leaving no one behind and without compromising the heritage for future generations.

Since 2015, the JRC has been working to put resilience thinking into policymaking. This note summarizes some key strategic lessons from this scientific work, and put them in the context of the COVID-19 emergency.

Societal resilience needs to be tackled **with a 360-degrees system approach**, which helps to look at complexities and interconnections. The COVID-19 pandemic impacts our society at different levels and with different intensity, affecting the human and social capitals, the socio-system services, institutions, communities, the production process, consumption, and investment.

To respond in a resilient way, **different resilience capacities need to be evoked**. The COVID-19 shock is so extreme in its duration and intensity that it is simply impossible to address it through absorptive capacities or a simple adaptation of the system. Therefore, it should become an **opportunity to progress and “bounce forward” through adaptation and transformation**. As this would not happen automatically, policies need to provide the necessary positive impulses for it, with a mix of prevention, preparation, protection, promotion and transformation measures.

These efforts can reinforce the political ambitions to put the EU on a more sustainable economic, social, environmental and institutional path. Such a transformative resilience can also strengthen people, and mobilise their creativity and devotion needed for dealing with the crisis.

The JRC approach to tackle societal resilience has led us to **suggest a few actions that could be implemented** to face the current COVID-19 emergency.

First, policy measures need to rebuild all capitals eroded by COVID-19: built, human and social capitals. This requires better and stronger coordination of sectoral interventions, an improvement in the measurement and monitoring of human and social capitals, and the adoption of innovative classifications of public and private expenditures, according to the “capital-based” policy framework.

Second, policies measures have to focus on the short-run, but keep in mind the medium-term and the opportunity to bounce forward. The opportunity of getting out of the crisis greener and fairer cannot be wasted in the name of urgency.

Third, many factors highlighted by such a resilience perspective are useful for designing policies to face the current crisis, and eventually facilitate a bounce forward: the role and participation of citizens; trust in institutions; identifying opportunities that would allow the EU to improve its wellbeing and sustainability without using expensive policies; reconsidering the health systems; re-addressing the trade-offs between security and privacy; promoting a shift towards more sustainable tourism; making a jump in using digital tools in administration and education practices.

Forth, the societal mood and people’s perceptions will play a key role in driving the behaviours, once lockdowns are terminated. Therefore, it is fundamental that governments and the EU are perceived as institutions able to manage the recovery process. This calls for clear and effective communication.

# 1 Introduction

COVID-19 is spreading fast, causing many deaths and testing the resilience of public-health systems with a high number of people in the need for hospitalization and intensive care. Italy and Spain have suffered the most so far, but COVID-19 is now spreading fast across Europe, putting every country under growing pressure. The whole EU looks very vulnerable, and fear and panic are spreading among its citizens. An immediate and forceful policy response is urged, or the dramatic consequences of the virus are likely to be long-lasting.

What can be done? This crisis is not the first that hit the EU and unfortunately, it will not be the last. A few years ago, the global financial crisis triggered a major recession and for a decade many countries suffered its consequences. As a response, several measures were put in place and today the EU is much better equipped to fight economic crises originating in the financial sector or a particular sovereign.

But the problem is that each crisis is different from the previous ones. It is of a different nature. And it would be illusionary to think that there will not be 'a next crisis'. The current COVID-19 emergency, while affecting health, social and economic systems, seems to be warning governments worldwide that new crises of unforeseeable nature are likely to emerge, as the combination of environmental degradation and deep economic interconnections has made the world more vulnerable.

How can we prepare ourselves to face unforeseen or even unknown shocks? How can we make the right, or at least good enough societal choices once a threat has gotten through our defences? How can we better understand the trade-offs and reconsider our socioeconomic models and lifestyles where needed?

The EU has started to act immediately by intervening on multiple fronts<sup>1</sup>: reinforcing the public health sectors, mobilizing means to help Member States coordinate their national responses, mitigating the socio-economic impact in the Union and supporting research and coordination European and global research efforts. Though now the focus is understandably on the immediate emergency response, one also needs to look ahead. Crisis management needs to be harmonized with a return towards normality taking into account social costs. Yet, most likely this normality would be very different from the world as we knew it before. We need to make sure that this new world represents progress vis-à-vis the old one from, if not all, at least several points of view, without prejudging the European values and its culture, as expressed in the EU Treaties.

**The key message of this note is that we should not try to "bounce back" to the pre-crisis condition, but to design policies and interventions to "bounce forward" towards a better and more sustainable pathway from an economic, social and environmental point of view.** As this would not happen automatically, policies need to provide the necessary positive impulses for it. Besides the emergency response team A, we need a bounce forward team B at work.

The recent statement of the European Council<sup>2</sup> also emphasised the parallel need to fight the immediate emergency and to start preparing the recovery and the eventual return to sustainable growth:

"The urgency is presently on fighting the Coronavirus pandemic and its immediate consequences. We should however start to prepare the measures necessary to get back to a normal functioning of our societies and economies and to sustainable growth, integrating inter alia the green transition and the digital transformation, and drawing all lessons from the crisis. **This will require a coordinated exit strategy, a comprehensive recovery plan and unprecedented investment [...].**

We must also draw all the lessons of the present crisis and start reflecting on the resilience of our societies when confronted with such events. In that respect, the time has come to put into place a more ambitious and wide-ranging crisis management system within the EU."

In fighting a crisis, the contribution of science is powerful and can play a major role in team A, supporting policy actions. When COVID-19 appeared, scientists immediately started to analyse it, test for it, looking for effective treatments and working on the development of a vaccine. Epidemiological models were deployed to see how the virus spread and understand the effect of containment measures. Economic models were used to assess the economic impact of the crisis, and how it is intertwined with the health aspects. **But science can also do more.** It can help team B to **design frameworks to guide the response and protocols to be followed when a new unexpected crisis emerges**, taking into account its specificity but also learning from the past

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<sup>1</sup> [https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response\\_en](https://ec.europa.eu/info/live-work-travel-eu/health/coronavirus-response_en)

<sup>2</sup> <https://www.consilium.europa.eu/en/press/press-releases/2020/03/26/joint-statement-of-the-members-of-the-european-council-26-march-2020/>

crises. **It can also explore the dimensions where a crisis may bring about permanent shifts, and the policies with which we can make sure that these shifts are for the benefit of society.**

This note summarizes some key strategic lessons from scientific work done by the JRC in the last five years on assessing the vulnerability and resilience of the EU to different challenges and shocks. **This work focuses on the concept of societal “transformative resilience”, which is key to prepare our society and to develop the general capacities that are necessary for coping with the current and the future crises.** It also sheds light on which underlying characteristics can be associated with a more resilient response of countries during the past economic crisis. In this note, we argue that some of these characteristics could be relevant to cope with shocks also of different natures, including COVID-19. Finally, we enlist some areas with a strong “bounce forward” potential.

## 2 JRC work on resilience

### 2.1 Systemic shocks and resilience

JRC work on resilience aims to provide policy makers with scientific knowledge and tools that help to face expected or unexpected shocks. For the entire world, COVID-19 is a shock that we did not expect and that most of us could not have even imagined. The system, especially the health system has proven to be unprepared.

Besides being unexpected, another important feature of the COVID-19 outbreak is its interconnected and systemic nature. Globalisation and mobility of people all around the world are the starting points of the systemic nature of the emergency, both from the health and the economic perspectives. Even at a national scale, our society consists of a number of interconnected systems and actors, including households, businesses, various government levels, and public institutions. Shocks like the COVID-19 epidemic cascade through these complex layers, reaching seemingly unaffected people or parts of our world, and interacting with each other. It affects our health systems, social connections, travel, tourism, production, international trade, value chains, or trust in institutions.

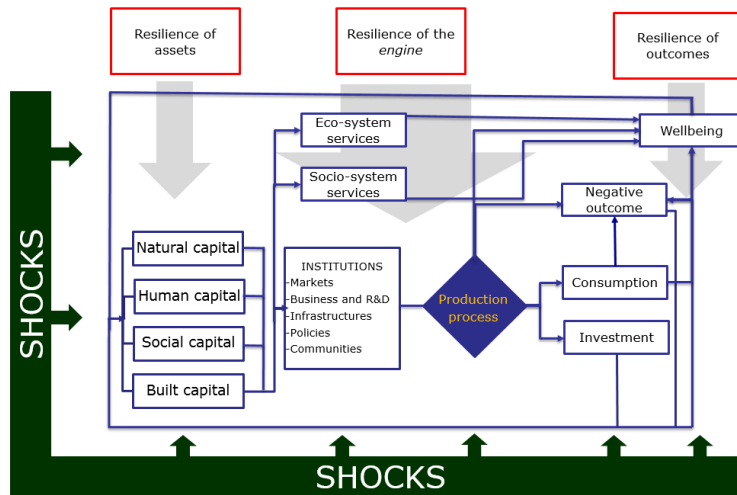
In these circumstances, **the resilience of our society is crucial**. We need to be able to face shocks and persistent structural changes in such a way that **societal well-being is preserved**, leaving no one behind (intra-generational equity) and without compromising the heritage for future generations (inter-generational equity and sustainability). Hence, our society should be able to respond in a sustainable manner.

### 2.2 The resilience conceptual framework

Since 2015, the JRC has been working to put **resilience thinking into policymaking**. The first result of this research activity was the **JRC conceptual framework on vulnerability and resilience** (Manca et al. 2017), which provides a theoretical background and defines key concepts and ingredients (see next section). Further JRC research has put forward two additional important building blocks: a measurement strategy that can allow for continuous monitoring, and an analysis of the resilience of individuals.

The vulnerability-resilience narrative proposed in the conceptual framework takes a **multidisciplinary perspective and adopts a wide, 360-degrees system approach**. Policies and regulatory frameworks, business strategies, consumer preferences, institutional setups need to be interpreted in a holistic context. The adoption of a systemic approach is especially challenging in the context of the European Union, characterised by a multi-level governance system and a complex division of labour between supranational, national and territorial authorities.

The stylised system (see the figure below) is composed of three distinct elements, which can be affected by shocks of different nature. (i) Assets include various forms of human, social, natural and built capital. (ii) Outcomes represent determinants of societal and individual well-being (e.g. health, employment, trust, and happiness), consumption and investment in a general sense, as well as some adverse systemic fallouts (e.g. social exclusion, poverty, inequality, waste in general). (iii) The engine transforms assets into outcomes through societal institutions and processes such as governments, markets, enterprises, or communities.



Such a system approach helps to tackle complexity and interconnections since it sheds light on what shocks are, how they spread among the system's different segments, how they interact with each other and with the actors, and where to intervene. It also addresses the interactions between different parts of the socio-economic-ecological system and highlights the role of coordinated actions.

COVID-19 hits almost all parts of the system: the human and social capitals, the socio-system services, all the institutions, communities, the production process, consumption, and investment. The resilience of assets, engine, and outcomes are all under pressure in a very short time.

In particular, COVID-19 first impacts on people's health and the health system, which must absorb the large number of sick people in the need for hospitalisation. Human capital is immediately eroded, as the disease puts workers into their sickbeds. Containment measures further affect human capital by mandating people to stay home, shutting down non-essential activities and suspending schools. These also have a negative impact on social capital, by drying up social ties and exacerbating loneliness. On the other hand, social capital plays a role through solidarity, trust in institutions and reciprocal compassion and support. Natural capital seems to benefit from this situation as pollution decreases in highly populated areas due to the containment measures of human activities.

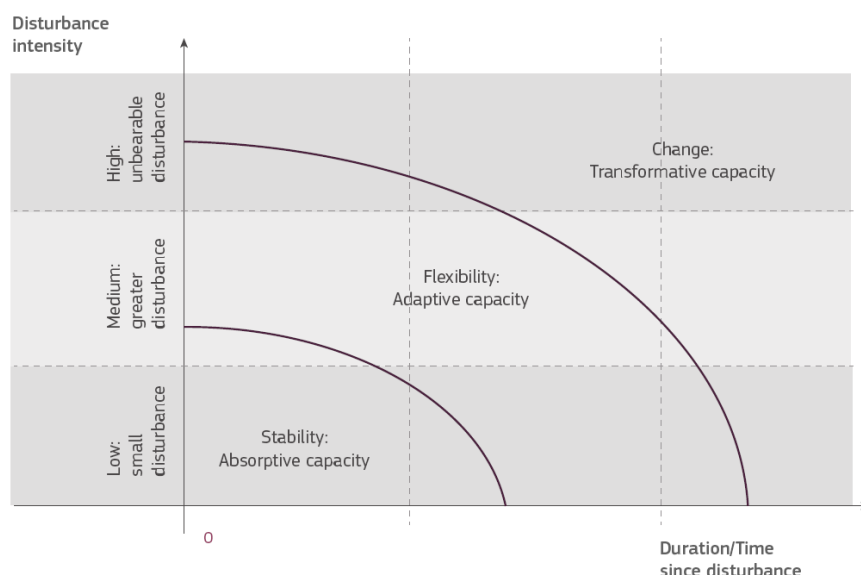
In terms of the engine, institutions are all hit hard. Governments are under pressure to respond to the emergency in the short term. Financial markets suffer from uncertainty and the repercussions the crisis has on the economy. Many sectors are confronted with a long period of low demand and issues with supply.

In terms of outcomes, consumption substantially decreases, as households may experience financial distress or prefer not to spend given the uncertain situation. Investment in the vast majority of the sectors shrinks or freezes. Both the health and the economic impact may hit disproportionately different segments of the society, particularly vulnerable groups, and risk to magnify social inequalities. Overall, societal wellbeing is under severe stress.

## 2.3 Enhancing resilience: activating different resilience capacities

When a system or a country is shocked, **different resilience capacities need to be evoked** (see figure below). When the time of exposure is not too long and the intensity is not too large, the most appropriate way to react might be through the **absorptive capacity**. As the time of exposure and its intensity increases, the **adaptive capacity** will start playing a role, strengthening the flexibility and readiness for small changes. Ultimately, as the disturbance becomes unbearable (both in terms of its intensity and persistence) and the adaptation would lead to a too large change, a **transformation** is needed to ensure that the system finds its new sustainable development path and avoids collapses.

Transformations do not only include technical and technological changes, but also **cultural changes, behavioural shifts, and institutional reforms**. They question values, change priorities, challenge beliefs, identities, and stereotypes. **Therefore, achieving a successful transformation calls for the engagement of people**, in discussions, and in actions.



Resilient behaviour includes learning from past or current disturbances. This enables resilient societies to improve their resilience capacities or to reduce subsequent risks. In this sense, distress can even serve as an opportunity to progress and bounce forward.

The COVID-19 shock is a major challenge to European policies that aim at improving the ability of the system to deliver good societal outcomes (by definition, those enshrined in the Lisbon Treaty)<sup>3</sup>. The shock is so extreme in its duration and intensity that it is simply impossible to address it through absorptive capacities or a simple adaptation of the system. Therefore, the crisis should become an **opportunity to progress and “bounce forward” through a combination of adaptation and transformation measures**. These efforts can reinforce the political ambitions of the new Commission<sup>4</sup>, which aim to put the EU on a more sustainable economic, social, environmental and institutional path. Such a transformative resilience can also strengthen people, and mobilise their creativity and devotion needed for dealing with the crisis.

Indeed, resilience capacities originate strongly in people and their own capacities. **A resilient society is one where individuals are resilient**. Yet, people should not be left for themselves: individual resilience can and should be supported by institutions. Appropriately crafted **policies can help both to complement and to enhance resilience capacities**. They are particularly important for people at the margins of the society, who are more vulnerable and often also less resilient.

At the same time, societal resilience is not simply the ‘sum’ of individual resilience. It has important system-level ingredients, including social ties, community-level capacities, and the role of various institutions.

The current crisis highlights both the role of individuals and mutual dependence between people and institutions. On the one hand, the containment measures will not work if they are not endorsed by people. On the other hand, people need to trust governments and their actions to follow the measures put in place. A particular challenge is that the necessary physical distancing makes it more difficult to rely on social ties and communities.

<sup>3</sup> Article 3 of the Treaty of Lisbon:

“1. The Union's aim is to promote peace, its values and the well-being of its peoples. 2. The Union shall offer its citizens an area of freedom, security and justice without internal frontiers, in which the free movement of persons is ensured in conjunction with appropriate measures with respect to external border controls, asylum, immigration and the prevention and combating of crime. 3. The Union shall establish an internal market. It shall work for the sustainable development of Europe based on balanced economic growth and price stability, a highly competitive social market economy, aiming at full employment and social progress, and a high level of protection and improvement of the quality of the environment. It shall promote scientific and technological advance. It shall combat social exclusion and discrimination, and shall promote social justice and protection, equality between women and men, solidarity between generations and protection of the rights of the child. It shall promote economic, social and territorial cohesion, and solidarity among Member States. It shall respect its rich cultural and linguistic diversity, and shall ensure that Europe's cultural heritage is safeguarded and enhanced. 4. The Union shall establish an economic and monetary union whose currency is the euro. 5. In its relations with the wider world, the Union shall uphold and promote its values and interests and contribute to the protection of its citizens. It shall contribute to peace, security, the sustainable development of the Earth, solidarity and mutual respect among peoples, free and fair trade, eradication of poverty and the protection of human rights, in particular the rights of the child, as well as to the strict observance and the development of international law, including respect for the principles of the United Nations Charter. 6. The Union shall pursue its objectives by appropriate means commensurate with the competences which are conferred upon it in the Treaties”.

<sup>4</sup> See [https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission\\_en.pdf](https://ec.europa.eu/commission/sites/beta-political/files/political-guidelines-next-commission_en.pdf)



Nevertheless, many people volunteer in critical situations, putting their own life at risk, donating money to hospitals, organising themselves to create and supply hospitals with sanitary equipment or help others to cope with everyday difficulties during the lockdown.

## 2.4 How to act with policies

In order to face the emergency in the short term, and to be ready to effectively recover in the medium term, a range of measures is needed to enhance the “transformative resilience” of our society to COVID-19. As proposed in Manca et al. (2017), economic, social and environmental policies could be reclassified according to an innovative 5-group framework: prevention, preparation, protection, promotion, and transformation. **Preventive measures** aim at reducing the incidence and size of shocks and, in the best case, to avert them (e.g. red zones to limit contagion). **Preparation measures** aim at preparing for handling them successfully (e.g. reinforcing the health capacity with extra resources to face the emergency, strengthening medical research efforts to find a vaccine). **Protection measures** are required to mitigate the impact and support the absorptive capacity (like state support to the economy, e.g. for SMEs or the most hit sectors like tourism, or benefits for families which are forced to telework). **Promotion measures** serve to increase the adaptive capacity or flexibility (reinforcing the health capacity in those countries where the contagion has not yet spread). Finally, **transformation measures** get their role when the adaption needed is too large, or when aiming to bounce forward after the shock (promote investments into green sectors when the economy and investments will restart, redesign production chains, re-evaluate healthcare and working practices, etc.).

In the current acute state of emergency, governments need to focus strongly on prevention and protection. There is already an active discussion of strategic planning for the next steps, leaving behind the extreme measures and working towards a return to more normal economic and social functioning, and eventually a recovery.

If this return is slow, many changes and developments can stay with us for a long time and may imply further lasting shifts. If this return is relatively fast, most of the emergency steps and temporary arrangements can be reversed and we may be able to return to our previous world. But even in this case, maybe we would not want this new normality to be the world as we knew it before.

We need to identify the aspects where we can make important improvements, and eventually bounce forward. It is particularly important to bear in mind social well-being aspects, the environment, and economic sustainability within the planetary boundaries.

As such a shift would not happen automatically, policies need to provide the necessary positive impulses for it. We need to reconsider our health and sanitary systems, which must be preserved and improved, especially in those countries with a high share of elderly people. We have to address the trade-offs between security and privacy. Tourism may shift towards a more sustainable pattern. Digital tools can get a boost in education and working practices. Social ties may reconfigure. Supply chains may become shorter and also greener. These can indeed be major and difficult shifts, but the extremity of the current emergency can break down many past barriers.

The immediate prevention and protection steps thus need to be shifted gradually into promotion and transformation policies. Given their longer lags in implementation and achieving impacts, these policies also need to start early. Moreover, unleashing the capacity of transformative resilience can strengthen the ability to cope with the immediate emergency phase.

## 2.5 Important lessons from previous JRC resilience studies

The resilience conceptual framework illustrated above was used for the **assessment of the resilience of EU member states to the financial crisis** (Alessi et al, 2019). The study had two main elements. First, it created resilience indicators based on how different parts of the system have behaved during the crisis: how much they have worsened (**impact**), by how much they have recovered (**recovery**), how they did over the medium run and whether they managed to eventually **bounce forward**. When doing so, the assessed elements cover a broad range of the socio-economic-institutional system, going ‘beyond GDP’. The next step was to look for statistically significant and robust predictors (resilience characteristics) of resilient behaviour the properties of the observed dynamic behaviour of various ingredients of the system.

Results suggest that high pre-crisis government expenditure on social protection is the most important feature in predicting the country’s absorptive capacity. When focusing on the medium term, countries with a more stable

political environment are performing better. The quality of the business environment is critical to successfully overcoming a crisis and bouncing forward. These results can be put to a test by the current developments; and at the same time, such a measurement strategy can reveal new lessons from the different approaches and experiences of countries.

A forthcoming JRC study (Joossens et al., 2020) used the Eurobarometer Special Issue 88.4 to assess the **resilience of individuals** in all Member States. The complexity of individual resilience is captured through a composite indicator. It combines the self-reported assessment of the ability to bounce back, reported strategies of financial coping, and attitudes towards life. These features should play an important role in the way countries can cope with the current situation. **The analysis shows a heterogeneous European Union. There is a marked diagonal division. Individuals living in Denmark, Finland, Sweden, Luxembourg, and the Netherlands appear to be the most resilient, while the south-eastern block appears to be the least resilient.**

The forthcoming **JRC report on resilience** uses the common lens of resilience to look at **various EU and global challenges**. It looks at economic recessions, climate change, human-induced and natural disasters, supply security of strategic resources, and demography. The report discusses the nature of these challenges, their potential impact on the EU society, and the policies that are in place or could be applied to tackle them.

The report also features a broad set of **prototype dashboards**, summarizing and visualizing information on the state of vulnerability and resilience to most of the challenges covered by the report. The dashboards **paint a multidimensional picture** of the challenges, revealing **weak and strong points** of countries. Some of them could be utilized in assessing the preparedness and coping capacities of countries in relation to the COVID-19 emergency.

### 3 Examples: how to translate science into actions

How can we translate this approach into insights and suggested actions for policy makers to face the current COVID-19 emergency? Below we present a few actions that could be implemented at both EU and national levels.

1. The systemic approach tells us that, when designing policy actions, we need to take into account the entire spectrum of assets and relationships among institutions. In particular, **as the COVID-19 crisis has a negative impact on built, human and social capitals, while the fourth capital (the natural one) has been deteriorating for decades, policy measures have to aim at rebuilding all of them, in order to avoid a permanent loss of capabilities, at micro and macro levels.**
2. The adoption of such a systemic approach requires:
  - a. better and stronger coordination of sectoral interventions, in favour of those that may have a simultaneous positive impact on multiple forms of capital;
  - b. an improvement in the measurement and the monitoring of human and social capitals, where indicators are less detailed and timely, in order to complement the existing measures of built capital and of gross/net investments when designing and assessing policy interventions;
  - c. the adoption of innovative classifications of public and private expenditures according to the “capital-based” policy framework. For example, building a hospital is classified as an investment, while the salaries of doctors and nurses to make it useful for people’s health are considered current expenditures (the same applies to school and teachers, etc.). This could help not only to better measure the impact of the crisis and the responses to it but also to provide data that could underpin the functioning and the orientation of existing or innovative financial instruments, at national and European levels, aimed at rebuilding capital in all forms;
  - d. the adoption of the proposed classification of policies (prevent, prepare, protect, promote, transform) when specific legislative proposals are prepared and presented by the European Commission to other EU institutions.
3. As highlighted in the Council’s conclusions, policies have to focus on the short-run, but keeping in mind a medium-term perspective and the impact of specific policies on resilience. For example, there is a need to consider the exit strategies already in the lockdown; a need to keep in mind the conditions for a good recovery when managing the exit and partial opening; a need to keep in mind the “bouncing forward” when going through the recovery.

In general, offering a positive vision for the future is key for invoking and maintaining the resilience of people and (small) businesses. The lockdown phase uses dominantly prevention (disease control, health system, job loss) and protection measures (health system, income support, debt moratoria). **The exit may need to enlarge the palette with promotion, to facilitate flexibility and adjustments** (as needed for temporary reversals of restrictions, return to work after a job loss, reallocation of workers towards more important/active industries), **but also with opportunity of transformation** at business, community and individual levels through appropriate incentives and disincentives.

4. The opportunity of getting out of the crisis greener and fairer cannot be wasted in the name of urgency.

5. Among the lessons drawn from JRC research in assessing the resilience of EU Member States to recent economic crises and other challenges, and obtained from a resilience perspective in general, the following could be particularly useful for designing policies to face the current one, and eventually facilitate a bounce forward:

a) the role and participation of citizens are of utmost relevance. All individuals need to feel empowered and responsible for protecting each other. Social innovation is as important as other types of innovation;

b) trust in institutions has to be strengthened through an effective and coordinated action in tackling the different aspects of the crisis;

c) identify opportunities that would allow the EU to improve its wellbeing and sustainability without using expensive policies (promote changes in consumer preferences to protect the environment, promote smart-working, reduce excessive dependence from abroad, etc.);

d) reconsider how health and sanitary systems are organised and work;

e) address the trade-offs between security and privacy in light of the current crisis;

f) promote the shift of tourism towards a more sustainable pattern;

g) make a jump in regularly using digital tools in administration to ease procedure as well as in education practices, also for running lifelong learning programmes.

6. Research run by JRC clearly shows the role of individuals' and society's resilience in making crisis management and recovery more or less successful. The societal mood and people's perceptions will play a key role in driving the behaviours, including the economic ones, once lockdowns are terminated. Therefore, it is fundamental that governments and the EU are perceived as institutions able to manage the recovery process. This implies the need to prepare the ground in terms of communication, clearly identifying messages and tools of such a campaign.

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