



Foresight on Demand (FoD) Futures of Civic Resilience in Europe – 2040

Scenarios and Policy Implications

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SUMMARY

Europe is facing major societal challenges (climate change, demographic trends, cultural shifts induced by technology, new geopolitical balances, among others), which are radically changing the landscape of the European Union. Since the beginning of the 21st century, the instability of the markets and the economy and the difficulties of national and European public administrations in responding to the priorities of the citizens, have contributed to the increased detachment and lack of trust among citizens. While this poses risks to the formal structures and institutions traditionally framing and holding together the European social system based on democracy and the free market, the EU is pursuing major transition programmes in order to respond to the major societal challenges. Its concerns with resilience extend to both, the structures and institutions that hold Europe together, and to the transition programmes that it wishes to drive.

We consider civic resilience, as the ability of a community, city, or society to prepare for, respond to, recover from, and adapt to adversities, challenges, or disruptions. Civic resilience is a core concern in crises as well as in transitions. It is about civil society surviving changes (disruptions, tipping points, crises etc. whether they are abrupt or founded in long-term developments). It calls for local commitment, preparedness beyond the support of the public administration and the private sector. It's about civil society, both the community (social organizations) and the individuals (citizens), taking the initiative – as a key actor framing any social system – to lead social change.

Exploring alternative futures addressing radical changes in society can help better prepare for future crises and strengthen the resilience of civil society today. Therefore, in this policy brief, we aim to assist policy-makers by devising four possible future scenarios in 2040 and by considering their implications for today. While the challenges considered are global, policy implications are addressed especially about the European research and innovation policy. Four alternative scenarios were identified around two main axes (technological and economic adaptation and social & environmental stewardship):

- The first scenario, where both techno-economic adaptation and socio-environmental stewardship are high, represents an ideal future. This scenario (best of worlds) would be featured by low levels of community and individual resilience (welfare annihilates survival instinct): civil society would not be ready to face an unexpected event, totally devoid of self-protection mechanisms.
- The second scenario, where techno-economic adaptation is low but socio-environmental stewardship is high, means institutional void but strong community consensus. Here the risk -in terms of civic resilience- is that if the community prevails totally, then individuality is cancelled. Citizens are subordinated to the collective, which means the coexistence of a high level of community resilience and a low level of individual resilience.
- The third scenario, where high techno-economic adaptation meets low socio-environmental stewardship, represents a risk of rupture in the social fabric due to ubiquity and omnipresence of technology (AI, Singularity, Transhumanism?), an anomic society where community resilience is low -or even maybe annulled- even individual resilience may be high: in a homogenised alienated society where social institutions are annulled the only possible resistance may come from the individuals (a minority).
- The fourth scenario, the worst-case one, represents the survival mode where the menace is extreme, total and constant. Low techno-economic adaptation meets low socio-environmental stewardship, producing a vicious circle of desolation characterized by the fact that the social fabric is broken. It would be a radical context where both community and individual resilience may be high because hostile environments reinforce survival instinct (both individual and collective).

Each scenario provides a different point of view towards the situation in the EU today and what could and should be done by EU R&I policy, and by related policy fields that will affect the efficacy of the R&I policy pursuits towards civic resilience. Together they point us to the following policy recommendations:

R&I policy should enable and promote crisis prevention and preparedness – environmental monitoring and earth science are important, as are their connections to civil protection and crisis management practices. Technological innovations are potentially very important here and so is technology assessment, aiming to minimize the negative effects of technology use, while maximizing the positive ones.

R&I policy should aim to strengthen the resilience of infrastructure and to enable a balance between the infrastructure needs of society and environmental and ecosystem effects from its construction, use and decommissioning. Innovations in materials and construction technologies and techniques are important as are innovations in decommissioning and recycling technologies and processes, and in the monitoring and management of the state of infrastructures and in their use.

Keeping in mind the unpredictability of the social effects of technology and the importance of public services and local actors for civic resilience, it is important to engage broadly with actors responsible for public services in the definition of R&I policy agendas. Thus R&I policy can:

- stimulate radical social innovation through “glocal” (local but with global impact) creative initiatives, e.g. via living labs,
- identify and define boundaries for upcoming cutting-edge technologies implantation, prioritizing social stability and welfare,
- define agendas in resilience research, oriented to explore new potential needs and new ways of addressing existing needs, and
- to make existing public services more effective and resilient, for instance via education and health.

In addition to R&I agendas, civic resilience can be strengthened by improving governance, local democracy, public services and education policies to:

- improve social empathy - addressing societal needs through a more human-centered-business, UX-oriented, bottom-up vision. Prevent social anomy and get closer to the citizens´ daily reality and priorities;
- prevent ecosystem degradation - by promoting environmental stewardship, mainly stimulating bottom-up local collaborative and innovative initiatives;
- prevent cultural and moral degradation by promoting diversity, internationalization, and the preservation of cultural heritage and the basic European set of values: equality, law and fraternity; reinforcing democracy.

1. INTRODUCTION

Resilience has been a rising important political concern in the EU. The First European Strategic Foresight Report coined resilience “a new compass for EU policies”. It declared that “Europe needs to enhance its resilience – which is the ability not only to withstand and cope with challenges but also to undergo transitions in a sustainable, fair and democratic manner” (EC 2020). The recent concern with resilience draws on the experience with the financial crisis of 2009 (See BCBS 2009) and the risks it posed for the system of the Euro (Lapavitsas 2012, Lane 2021).

Since then, increasing conscience of the climate crisis², the migrant and refugee crisis³, the COVID crisis⁴, the Russian invasion of Ukraine and the conflict in Palestine, have only served to raise the political profile of resilience. Economic, social and political instability and the difficulties of national and European public administrations in responding to the needs of the citizens have contributed to the increased detachment and lack of trust among citizens. While this poses risks to the formal structures and institutions traditionally framing and holding together the European social system based on democracy and the free market, the EU is pursuing transition programmes in order to respond to the major societal challenges (Munch et al 2022). Its concerns with resilience extend to both, the structures and institutions that hold Europe together, and to the transition programmes that wishes to drive.

Resilience is progressively being woven into European policy frameworks, particularly in the realms of crisis management and ensuring the continuity of critical infrastructures and services. The EU's approach to risk management and infrastructure protection is increasingly centred around resilience, promoting collaborative governance and cross-border cooperation (Joseph & Juncos, 2019), which implies paying attention to the shared values and visions of a diverse and heterogeneous but solid community.

Resilience in critical infrastructure is increasingly understood as the ability of systems to withstand, adapt to, and recover from hazards, a view that significantly influences societal services and transcends traditional risk management approaches (Petersen et al., 2020). This perspective highlights, on the one hand the need to anticipate and prepare for future shock, and on the other hand to enhance adaptability and flexibility in the face of unexpected challenges. The operationalization of resilience in critical infrastructure signifies a notable departure from conventional asset protection, moving towards a comprehensive approach that emphasizes service continuity and recovery. This shift is indicative of a deeper integration of resilience into risk management frameworks, addressing both organizational challenges and the capacity to manage unforeseen events (Alessi et al., 2019).

Adoption of resilience strategies leads to a reconsideration of economic implications. Despite initial perceptions of high costs, integrating resilience into existing practices is increasingly seen as contributing to cost-effectiveness and improving long-term sustainability, especially as often the opportunity cost of doing nothing – wait and see – can be much higher than the investment in resilience. Infrastructure operators have proactively employed resilience strategies to effectively manage crises and ensure the continuity of essential services. This proactive stance has been particularly evident during the COVID-19 pandemic, which highlighted the critical need for adaptable and robust resilience strategies in the face of such unprecedented global challenges (Giovanini et al., 2020). The pandemic has further influenced the development of resilience strategies, underscoring the importance of strong healthcare systems, rapid response mechanisms, and early detection capabilities.

This diversity of perspectives underscores the dynamic nature of resilience and the need for adaptable, flexible strategies. Nonetheless, the field could gain from further standardizing the definition and measurement of resilience across various sectors and infrastructures.⁵ There is a shift from traditional risk management to a more adaptable, proactive and recovery-oriented approach.

Frigotto et al. (2023) consider that resilience is a property of societal systems, individuals, organizations and organizational fields that enables them to survive despite minor or major disruptions. This includes (a) the ability of systems of any kind, including individuals, to bounce back to a state of normality following disruptive

² [The Climate Crisis – A Race We Can Win | United Nations](#)

³ [Europe and the Refugee Crisis: A Challenge to Our Civilization | United Nations](#)

⁴ [ESM Pandemic Crisis Support | European Stability Mechanism \(europa.eu\)](#)

⁵ [Resilience dashboards - European Commission \(europa.eu\)](#)

and often unexpected events or crises (e.g. how a forest grows again after a fire), and (b) the flexibility to adjust to new, emergent situations without crossing a threshold.

At the personal level, resilience involves the capacity to withstand and even thrive in the face of stress, trauma, adversity, or significant life changes. Resilience is not just about enduring difficult circumstances but also about growing stronger and developing personally as a result of those experiences. Resilience is not a fixed trait but rather a dynamic skill that can be developed and strengthened over time through personal growth, learning, and experience. People can improve their resilience through self-awareness, psychological flexibility, seeking support, and practising coping strategies. It's an essential quality for navigating the ups and downs of life effectively.

The concept of 'Sisu', from Finland, embodies resilience as determined willpower rooted in historical endurance. Japan's Kintsugi, repairing pottery with gold, accentuates the beauty of embracing flaws. Viktor Frankl, reflecting on his Holocaust experiences, posited that finding purpose amid adversity enhances resilience. Holling's scientific distinction contrasts engineering resilience, emphasizing stability, with ecological resilience which values adaptability. Across varied origins, these concepts converge on a theme: resilience isn't just about facing challenges but using them for growth and transformation. In fact, resilience finds meaning in disaster (Solnit 2009). Building resilience requires experimentation, imagination and participation in finding new ways to live. Resilience is a quality that reveals itself only when tested. It is a valued ability the use of which is better avoided.

With civic resilience, the topic of this brief, we refer to the ability of a community, city, or society to prepare for, respond to, recover from, and adapt to adversities, challenges, or disruptions. It is about civil society surviving changes (disruptions, tipping points, crises etc. whether they are abrupt or founded in long-term developments). It calls for local commitment preparedness beyond the support of the public administration and the private sector. It's about civil society, both the community (social organizations) and the individuals (citizens), taking the initiative – as a key actor framing any social system – to lead social change.

Exploring alternative futures addressing radical changes in society can help better prepare for future crises and identify areas of how to strengthen today the resilience of civil society. Therefore, in this policy brief⁶, we aim to assist policy-makers by devising four possible future scenarios in 2040 and by considering their implications for today. In what follows, Section 2 describes four scenarios and their implications for policy-making today and Section 3 summarises the main policy implications derived across the four scenarios for the consideration of policy-makers in Member States and European institutions.

⁶ This brief is the result of one of eight Deep Dive Foresight Studies in the project 'European R&I Foresight and Public Engagement for Horizon Europe' conducted by the Foresight on Demand' consortium for the European Commission. During the autumn of 2023, the core group identified factors of change and organised two scenario and one policy implications workshops also engaging experts from academia, business, and public administration around Europe. Further information and room for interactive discussion is provided on the project's website: www.futures4europe.eu

2. FOUR SCENARIOS ON 2040

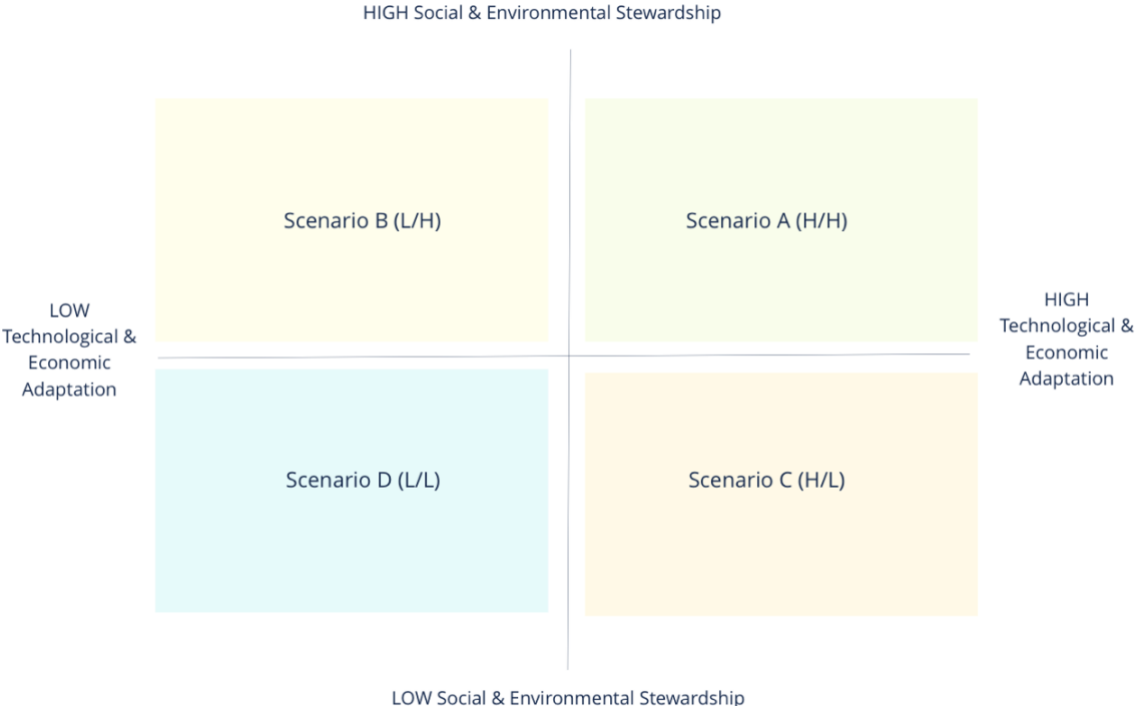
While scenarios⁷ often consist of a possible future state and the pathway from the present to that future, in this case, we develop the narratives of the future (written in the present tense, as if we were already in the future).

Based on the factors of change on future developments considered (see the Annex I), clustering them by using qualitative content analysis⁸ two dichotomic dimensions were defined and chosen as a reference framework to provide a starting point for the scenario work and a structure that ensures that each scenario is truly different from one other:

- **X-Axis: Economic & Technological Adaptation.** This captures the degree to which a society can adapt to economic downturns, technological disruptions, and changes in job markets.
- **Y-Axis: Social & Environmental Stewardship.** This encompasses the societal response to social inequalities, community cohesion, and the ability to address environmental challenges.

While the dimensions are used to identify dominant features, also alternative practices can be considered in scenarios but always in relation to the dominant features. The four scenarios are defined by selecting one of the two extremes of each dimension. Thus, we have 4 options for alternative futures providing structure for the development of scenario narratives. Figure 1 illustrates the structure used to guide and differentiate the development of each of the scenario narratives.

Figure 1. Structure for the development of scenario narratives.



Source: authors.

⁷ Scenarios are not predictions of the likely future, but they depict possible -plausible, alternative- futures. Exploring alternative scenarios helps to expand one’s own span of observation further towards the future, and to possible risks and opportunities that otherwise might not be in the immediate attention span, or just being excluded for being unlikely.

⁸ While being flexible by definition, involves systematically categorizing and interpreting data to identify patterns, themes, and meanings that emerge during analysis, which, while being flexible by definition, involves systematically categorizing and interpreting data to identify patterns, themes, and meanings that emerge during analysis.

Hence the matrix provides us the following four vastly different future scenario frames, which guided the development of narratives described subsequently:

A. HIGH Economic & Technological Adaptation, HIGH Social & Environmental Stewardship:

Entitled 'Sustainable Breakthroughs'. A scenario where both economic and technological challenges are well-managed, and there's a strong emphasis on social equity and environmental conservation.

B. LOW Economic & Technological Adaptation, HIGH Social & Environmental Stewardship:

Entitled 'Community-compensating'. While there are economic and technological challenges, society emphasizes community building, social justice, and environmental protection.

C. HIGH Economic & Technological Adaptation, LOW Social & Environmental Stewardship:

Entitled "Tech-Driven Dystopia". Economic growth and technological advancements are prioritized, but at the expense of social equity and environmental health.

D. LOW Economic & Technological Adaptation, LOW Social & Environmental Stewardship:

Entitled 'Europe in survival mode'. Economic downturns and technological disruptions occur without mitigation, and there's neglect in addressing social and environmental issues.

2.1. Scenario A: Sustainable Breakthroughs

Figure 2. Scenario A: Sustainable Breakthroughs.



Source: AI-generated with DALL-E 3.

Key Dimensions

HIGH Economic & Technological Adaptation, HIGH Social & Environmental Stewardship

In brief

In 2040, the integration of digital commons and grassroots efforts leads to sustainable growth and civic resilience. Transparent collaboration among public institutions, corporations, and local communities fosters environmental stewardship and inclusive development. It allows all communities, irrespective of origin, to prosper in a digital ecosystem valuing sustainability, mutual progress, and resilience. Civic tech platforms, built on open standards and protocols, democratize digital interactions, allowing even the most distant communities to harness the benefits of technological progression. Cross-community initiatives champion shared problem-solving, from resource management to disaster preparedness and recovery. Small communities connect forming a European network. No one is left behind; stronger members support those in need.

In sudden events like earthquakes and forest fires, the focus is on immediate, individual-level resilience through quick decision-making based on real-time information and prior preparedness. This is supported by continuous monitoring of long-term trends and progressive adaptation of infrastructure, economic activities, and community lifestyles. Each crisis presents unique challenges, but the common thread is the resilience and adaptability of individuals and communities. Individual resilience is enhanced through AI-enabled alerts and innovative adaptation strategies, emphasizing adaptability and psychological strength.

Key drivers

Infrastructure, technology, and public services

By 2040, our physical infrastructure (buildings, roads, and bridges) have been built or retrofitted resistant and adaptive with innovative design frameworks. This has taken a revolution governance, especially in the way resources are allocated and used. The problem of the waste accumulated in the process remains to be solved, but it has been isolated and its environmental and social impacts have been mitigated. The new improved infrastructures effortlessly weather the heightened environmental challenges, from mega-storms to seismic events. Next-generation scanner drones and space-based earth observation help to pre-emptively address

wear and tear, ensuring the safety and longevity of infrastructure. Europe exports such technology all over the globe, especially for climate adaptation related uses.

Our energy landscape has seen one of the most profound shifts. Decentralized energy sources work in tandem with smart grids, enabling cities and most of rural areas to bounce back almost instantly after disruptions. Mobility too has seen a revolution. Autonomous transport corridors seamlessly link hubs with sustainable transit solutions. The digital Infrastructure progression towards 7G has eradicated digital deserts, guaranteeing high-speed connectivity throughout the continent. This robust bandwidth infrastructure now acts as the pillar for the flawless integration and operation of IoT devices and other advanced technologies.

The digital twin technology of advanced virtual replicas monitors every aspect of our infrastructure, from bridges to waterways, ensuring optimal operation and pre-emptive maintenance. The data models for climate projections as well as global data capabilities provide accuracy and new materials and approaches are built with this knowledge. AI and IoT are now integral facets of our digital culture, centring around inclusivity and accessibility. As AI and extended reality (XR) become integral to daily life, so does the understanding that technology must be employed ethically.

Civic tech platforms, built on open standards and protocols, have engaged even the most distant communities. Small communities connect with a European network, which itself becomes resilient due to its cross-border and -culture connections.

Decisions about technology adoption are now anchored in thorough collective research. Multidisciplinary approaches from anthropology, economics, engineering, law, philosophy, psychology, and others constantly deal with the phenomenon of unintended consequences of technology adoption and help to balance timely, sound, and adaptive legislation quickly.

The 2040 regulatory frameworks balance collective interests with individual freedoms. Public administrations widely apply foresight to design inclusive and efficient services. With a strong digital backbone, these services are reminiscent of the path that Estonia showcased two decades ago. Seamless integration across different governance levels ensures that citizens experience consistent and reliable services. Universal digital service access not only prevails but also champions decentralization. Such a strategy has empowered communities to craft, tweak, and interlink their digital solutions.

Social and community systems, education and values

Cross-community initiatives champion shared problem-solving, from resource management to disaster preparedness and recovery. This collaborative spirit is further emphasized by an EU-wide and even global community-driven knowledge base. Through Extended Reality (XR), individuals can "dive" into this repository, experiencing cultures, histories, and stories in depth. Low-cost XR devices, which started with Mojo augmented reality contact lenses in the 2020s, are now universally available.

The power of 3D or even 4D (the simulation of physical movements and touches) experiences has made cultural exchanges literally go under the skin. Communities are not just ready for emergencies but deeply rooted in self-reliance. Every individual is equipped, not only with basic survival skills but also with the understanding and resources necessary to navigate civic emergencies. Education integrates arts honing imaginative capabilities. Knowledge assets are deeply intertwined with digital accessibility, experiential learning, and a multifaceted approach to education. In contrast to technology skills used in daily life, people are also prepared in the case of a crisis with the essential skills to work tech independently.

Digital commons stand as a beacon of knowledge, yet the essence lies not just in access but in the calibre of knowledge shared. Community mediation centres offer platforms for dialogue and conflict resolution. These hubs and centres shape public services to be both innovative and contextually relevant. Acknowledging demographic shifts, initiatives have been rolled out to endow our elderly population with the digital skills they need. Policies for integration have risen to the occasion, facilitating the swift and all-encompassing integration of migrating populations into our governance frameworks.

Economy, environment and health

Climate change has prompted significant actions, particularly in the fossil fuel sector, which now faces strict investment and operational constraints while shifting towards sustainable alternatives. Environmental challenges are mitigated by technologies that reduce fatal risks. Land use is minimized, and renaturation efforts are directed where most impactful. Waste management has undergone a significant transformation, emphasizing waste reduction, efficient recycling, and environment-friendly disposal methods. Technologies like carbon capture and storage (CCS) have expanded to include other gases. Large-scale plant and algae utilization helps mitigate climate risks. Shifts in climate patterns now have less severe impacts due to

advanced infrastructural resilience and every crisis event is used to learn and to avoid repeated patterned ineffective behaviour of the past. What used to be a catastrophe in the 2020s is now less so as its impact on infrastructure and people is less severe.

AI plays a crucial role in policy-making and healthcare, moving from treatment to holistic prevention by identifying health patterns and causes. Health literacy, aided by AI, enables communities to make informed health decisions, turning continuous learning into a universal practice. Drone support provides remote medical assistance and first aid, guided by real-time instructions.

If a region becomes isolated after a disastrous event, it sustains itself for the time necessary. Food production has dramatically transformed, through community-driven and technology-aided, particularly in indoor farming. This approach reduces dependency on unpredictable climate patterns. Food has become a symbol of both tradition and sustainable evolution, balancing cultural respect with modern practices. Sustainability also extends to land and water use. Food security relies partly on stocks of nutrient capsules developed originally to support space travel. The digital realm has revolutionized production with location-independent printing, ranging from food to gadgets. This includes innovations like food printers with capsules containing essential nutrients, fitting in a backpack and operating independently of the grid.

Disaster preparedness and response

In the wake of river flooding and coastal defence failures, extensive damage has been inflicted upon infrastructure, homes, and agriculture. Power outages, disrupted transportation and contaminated water supplies plague the affected areas. These crises often strike swiftly, within hours or days. Individuals rely on AI-driven alerts and evacuation guidance for quick responses, while communities and authorities coordinate evacuation and emergency management efforts.

The era's advanced technologies, including AI and IoT, play a pivotal role in flood prediction and response systems, supplemented by robust coastal and river defences, drones, and autonomous systems for emergency response. Post-event, communities adapt with stronger flood defences, elevated structures, and training using immersive technologies to enhance resilience.

Arable land and biodiversity loss, along with economic hardship and displacement, are rampant. These changes, have gradually forced farmers and individuals to adapt, sometimes transitioning to innovative farming methods like vertical or underground farming, relocating, or retraining. Communities have implemented psychological support programs and initiatives for hope-building to help individuals cope with these long-term environmental changes. The use of AI and satellite monitoring for sustainable land management, investment in drought-resistant crops through advanced biotechnologies, and digital platforms for community water management are commonly used. Policies focus on diversifying economies, sustainable water usage, and soil conservation, with community-based environmental monitoring systems integrated with global data for localized decision-making.

Effective fire management strategies and preparedness programs are built on AI-based fire prediction and monitoring systems, along with drones for surveillance and firefighting, as well as quick evacuation and emergency responses. Also, community awareness and fire-resistant infrastructure are developed.

Each crisis presents unique challenges, but the common thread is the resilience and adaptability of individuals and communities. Individual resilience is enhanced through AI-enabled alerts and innovative adaptation strategies, emphasizing adaptability and psychological strength. In sudden events the focus is on quick decision-making based on real-time information and prior preparedness. This is supported by continuous monitoring of long-term trends and progressive adaptation of infrastructure, economic activities, and community lifestyles.

Concurrently, communities synergize personal adaptability with collective strategic planning in disaster response and long-term environmental management. The emphasis shifts from individual reliance to embedding technology within community resilience frameworks acknowledging the varying levels of technological accessibility, open protocols and a commons-based strategy. Inclusive community-driven technology integration acts as a shared resource for collective resilience rather than an isolated individual responsibility.

Key actors and their strategies/activities

Foundations, NGOs, universities, research institutions, and unions play crucial roles in bridging technology and community needs, offering digital grants, fostering cross-disciplinary collaborations, and advocating for workers' rights in an automated world. Insurance models reward communities and businesses for sustainable

practices emphasizing long-term resilience and minimising environmental impact. Digital art exhibitions showcase sustainable models, merging traditional and digital art.

Public administrations launch digital platforms for community projects, linking grassroots innovation with state resources. These platforms also foster intergenerational dialogues, embedding long-term sustainability in technology. International collaboration among national and regional entities, including Intellectual Property Offices, streamlines IP protocols to share technological breakthroughs, fostering sustainable innovation.

Small communities establish digital knowledge-sharing hubs, enhancing cross-community cohesion through shared insights and best practices. Public institutions focus on technologies that are locally relevant and globally impactful. Academia integrates technology, sustainability, and community engagement in interdisciplinary courses and research, shaping a globally conscious, locally active future generation.

European perspective

Within the global context, the EU is a partner for co-developing sustainable and resilient civic models. This means that the EU not only transfers its homegrown knowledge but is an active learner, too. By moving away from centralized and regulatory practices the EU applies the subsidiary principle to help communities innovate together.

All the innovation is furthering the EU's technological independence from non-democratic regimes as well as from multinational companies. With a focus on inclusive institutions, decentralized yet connected competencies, and conscious boundary setting it has been able to minimize polarization, grow policy acceptance, and instil more trust and confidence.

Policy Implications for today

By 2040 this scenario depicts a holistic and dynamic approach to not only surviving disasters but thriving in their aftermath, ensuring social equity, environmental stewardship, and collective well-being in the face of adversity. We derive from scenario developments the following implications for policy-making today.

In general

- **Enhance digital infrastructure and access.** Progress towards advanced digital connectivity (e.g., 7G). Ensure universal digital literacy and equitable access to technology.
- **Strengthen community-driven sustainable initiatives and social systems.** Support local innovations and community engagement in policymaking. Develop cross-community collaborations for shared problem-solving that also integrate environmental stewardship across sectors.
- **Revolutionize education and healthcare.** Reform education to include environmental, technological, and problem-solving skills. Leverage AI for preventive healthcare and promote health literacy.

Enhancing societal resilience and disaster preparedness

- **Innovate in disaster management and resilience technologies.** Foster public-private partnerships to advance AI, IoT, and material sciences. Develop robust infrastructure resilient to environmental challenges.
- **Establish economic, cultural, and political frameworks to build resilience.** This includes fostering innovation in disaster management technologies through public-private partnerships, focusing on AI, IoT, and advanced material sciences, and creating economic resilience funds to support regions prone to natural disasters.
- **Invest in restoration and conservation** to form natural buffers against disasters.
- **Define critical R&I measures.** For severe storms and floods, the focus is on developing advanced early warning and response technologies, including meteorological forecasting, flood simulation models, and autonomous evacuation systems. Prioritise research on building flood-resistant infrastructure and integrating green architecture, alongside funding AR and VR technologies for community training programs.

- **Focus on sustainable economic recovery, cultural heritage restoration, and community support** such as reviving their local customs, facilitating psychological recovery and community cohesion.
- **Underpin sustainable rebuilding efforts** for resilient infrastructure and communities, with local governments playing a key role.
- **Define R&I measures to research** sustainable land and water management to combat desertification, focusing on drought-resistant crops and innovative farming methods.
- **Explore societal adaptation** and economic diversification in affected communities. Community-based environmental monitoring and mental health programs can aid in long-term adaptation. R&I measures also include material science research disaster-resistant materials, population-specific response strategies for different urban and rural layouts, and public education initiatives for disaster preparedness.

2.2. Scenario B: Community-compensating

Figure 3. Scenario B: Community-compensating.



Source: AI-generated with DALL·E 3.

Key Dimensions

LOW Economic & Technological Adaptation, HIGH Social & Environmental Stewardship

In brief

It is 2040, and Europe is relentlessly buffeted by myriad intersecting crises including those driven by the intensifying climate catastrophe, leaving no area of life or governance untouched. The previous generation of European political leaders at EU and MS levels failed to take steps to centrally coordinate and invest in resilient infrastructure and technologies, nor to build economic resilience through economic diversification. This 'institutional void' of resilience planning has now been filled through citizen councils and assemblies operating through deliberative democracy and organising multi-form civic resilience activities at local, municipal, or eco-shed levels. A lack of technological infrastructure for forecasting and emergency communication means there is little capacity to predict or plan for oncoming disruptive events. Without resilient critical infrastructure, where communities' own ingenious socio-technological solutions are tested by extreme or intersecting crises, many are forced to manage through a reactive 'Retreat-Reintegrate-Reconstruct' resilience model. At times, it feels as if Europe is undergoing slow collapse and contraction punctuated by shock declines, with communities stuck in a cycle of continuous emergency response. At other times, strengthened care-based communities embracing the diverse skills of refugee communities, underpinned by strong environmental and social stewardship values, are awakening to communal life, with ecological gains and enhanced quality of life.

Key Drivers

Infrastructure, technology and public services

A lack of innovative solutions and consensus to produce robust financial architecture to respond to the 'infrastructure gap' has meant that critical infrastructure projects have not been upgraded. Ageing infrastructure is ill-suited for challenges like rising sea levels, changing weather patterns or high-impact climate events, with poor resilience to cascading failure. Intermittency is a problem for infrastructure ill-designed to withstand resource constraints. Dilapidated public buildings are a bottleneck for development, and old technologies trap national economies into the falling profitability of unsustainable business-as-usual. Energy systems are a mix of older unsustainable gas/coal power stations with an electricity grid that suffers frequent shutdowns; localised/decentralised renewable systems powering vital shared resources such as

health centres, devised and administered by local communities; and individual households producing and sharing their top-ups.

Late attempts at large-scale transitions to renewable energy systems such as wind and solar power farms have occurred in certain regions; NIMBYism has been replaced with PIMBYism (please in my backyard!) as regions have realised the benefits of proximity to these projects. Advances in green technologies, made outside the EU, undermine struggling EU industries. Replacement parts and expertise for repairs are difficult to source and slow to arrive, with municipalities locked into external dependency and held to ransom on prices. Managing nuclear power stations amidst extreme climate events, water scarcity and energy intermittency is a pernicious problem. The feeling of mistrust and scepticism towards large-scale infrastructure, technologies, and projects entrenches the belief that 'big is bad and small is good.' This leads to some technology, that could support resilience, being overlooked, particularly innovations in food production.

Amidst breakdown and intermittency, the management of critical service infrastructure (water, energy, food, health) has been devolved to the local/municipal level, with a 'bricolage' of solutions adopted. There are significant regional disparities and regional coordination for resource-sharing is difficult, with communities under continuous pressure to mend and manage breakdown. Adaptation happens and often ingenious, contextual solutions are implemented, underpinned by managed degrowth and principles of sufficiency to equitably redistribute resources amidst declining availability. Low-tech, 'simplified high tech' or 'resilient tech' solutions that use minimal energy, local resources and are repairable and mobile are the favoured solution. For periods, the local governance and management of localised critical infrastructure works well enough. However, lack of economic capacity and resource availability hinders successful community projects and can select instead for easy deployment rather than future resilience. Improvements are incremental and patchy in adoption. A lack of EU-based data platforms holds institutions and companies to ransom and challenges the security of critical infrastructural services. Belated experiments with local data platforms are ongoing but suffer from lack of trust.

Regional travel and longer distance haulage is challenging due to high petrol/diesel prices and declining conditions of roads, particularly after extreme weather events. Some electric vehicles are available for certain journeys, but this is frustrated by intermittent electricity supply and broken charging stations that are difficult to repair. At a local level the public transport that exists is free, although most journeys are made by bicycles, and communities are dotted with repair workshops. Roads repaired by local communities use green substrates interspersed with flood-absorbing planting. Vastly improved urban air quality, road safety, play spaces and the benefits of active travel lives are widely recognised as having enhanced individual, family and community resilience.

The intersecting environmental and economic crises have impacted on population and habitation patterns in Europe, with large and fluctuating numbers of climate refugees. Poor communication infrastructure impacts regional coordination after catastrophic de-habitation events, placing undue pressure on certain regions. Mechanisms to rehouse people are locally contingent and vary with resource capacity. Poor housing stock is slowly replaced through community rebuilds following destructive events, with modular, adaptable, and locally relevant solutions favoured. Building material streams come under community ownership. Attention to insulation helps to buffer families from huge energy prices. Septic tanks and composting/waste sorting happen at a community level, and fertility is slowly returned to soils. For smaller-scale technologies a lack of 'right to repair' legislation meant many technologies became black-boxed and rapidly obsolete after being damaged, now displayed in community 'Museums of Industrial Folly.' Despite these challenges, many communities run free repair shops, recycling amenity centres and share-sheds, minimizing waste, maximising resource use, and drawing on local knowledge. Debris left after climate events are repurposed and redistributed within the community. Furniture is repaired and redesigned to be packed up and moved quickly, and belongings are minimised to reduce personal losses and enable mobility.

Social and community systems, education, and values

Municipalities and eco-regional governance organisations have taken over from Member States as the key political actors; MS are largely symbolic as political entities. Citizen councils and assemblies operate through deliberative democracy principles and organise multi-form civic resilience activities at local, municipal, or eco-shed levels. Regional resilience assemblies attempt to coordinate between regions and share 'common' resources, particularly water. Decision-making roles in local governance are circulated. The tyranny of enforced consensus is recognised with dissent an important part of the process of deliberation. Participation in community tasks is distributed and circulated, so everyone can continuously learn new skills, fostering strong multi-generational and multi-cultural social ties.

Sharing during times of need occurs organically between close neighbours and is formally organised at a community level. At other times, a preference for communally organised social reproduction tasks for

conviviality, efficiency and solidarity in hardship emerges. Community kitchens, cooperative laundries, supportive housing, and community childcare facilities integrating elder care flourish. 'Newly displaced' families and communities are actively welcomed for the new resilience skills, diversified knowledge and experiences they bring to enrich these communal practices *'More mouths to feed? More hands to re-seed!'* The need to share and widely distribute knowledge and skills in different formats is understood as essential for resilience. Every act of repair, maintenance or use is considered a moment of apprenticeship training, and knowledge preservation happens in different formats. However, due to limited economic capacity it can take time to build the resources needed by communities to retrain workers. These localised support systems work well for community rebuilding following certain crises but are challenged or inadequate when large-scale catastrophic events impact whole regions or nations.

Elders and those from prior displaced communities teach environmental, community-building, survival and essential skills at all education levels. Children learn how to grow food and medicinal plants, cook, forage for and preserve food, purify water, provide first aid and maintain health. They are schooled in participatory democracy and conflict resolution. Music and storytelling are centred in the curriculum, for community wellbeing and knowledge preservation. Community colleges embedding life-long learning principles thrive, the curriculum is democratically determined by students and communities, and all courses are free. Workers can spend a day a week at community colleges and take study sabbaticals. In contrast, dwindling student numbers threaten established universities and many close, as a perceived yet contested gap emerges between knowledge for response and survival, and 'knowledge for elites.' The university curriculum in places is restricted to healthcare, agriculture and engineering, and becomes problem-orientated. Poor communication technologies and intermittent IT systems impact teaching and research. Those who can afford to study at world-leading universities in China. At all levels, a lack of trust in IT drives a return to paper-based resources, with issues of degradation and even vulnerability. Resilient and sustainable technology solutions are taught theoretically at universities, but there is a gap in the capacity to implement these concepts and innovations at scale.

Environment, Economy and Health

European economic systems are still funding unsustainable activities and sectors. Economic downturns led to unemployment, business closures and reduced government revenues. Lack of action to diversify economies and respond to job displacement led to dwindling opportunities with no financial safety nets for citizens. After bailouts to rescue the 'too big to fail' banks became unaffordable, local community credit unions became the default way of saving and borrowing, and local currencies - barter-like credits - have all but replaced the euro in many areas. Private home ownership has largely disappeared as an ideal due to frequent actual and anticipated damage and loss of housing stock; housing options are rented through municipalities and provide a key form of funding for community reinvestment at this level.

High unemployment in certain sectors that failed to rapidly decarbonise has been compensated by the growth in the caring economy funded through local currencies and resource sharing at local levels. Working hours are limited to a 3-day working week as paid and community-organised work is redistributed. This is supported by forms of universal basic income distributed by local councils through local currency tokens or food rations. Traditional financial insurance is available only to the elite, with forms of mutual insurance organised in places. The community approach to resource and waste use fuels a form of circular economy and cooperatives flourish. These ad hoc community responses produce a huge increase in the workforce engaged in food production and caring roles. Local 'hubs' offer workspace in community-repossessed city offices of former multinational firms, allowing innovation and sharing across work-related domains.

Within municipalities or eco-sheds, economic disparities are evened out through the sharing, collaborative economy, and by upper per capita earning ceilings. There are increasing efforts to extend up these regional transformations in limiting financial capitalism through the community distribution of stocks and the democratic transformation of corporations and big business, but this is hampered by a lack of geopolitical power at MS and EU levels. Regional disparities have worsened but are not entrenched, as those areas most recently hit by climate events slip to the bottom of the economic pile. Super high earners have mostly left Europe or are in private enclaves. These economic extremes are exacerbated by an increasing digital divide, with the top 5% living AI driven lives reliant on private external data platforms. Elites largely operate outside of the governance of the EU.

Failure at the EU level to secure critical supply and value chains is exemplified by a reliance on the global food chain which suffers from low systemic resilience, with poor transport networks reliant on intermittent energy supplies, lack of storage facilities, water scarcity and fertile land inundation, and national policies restricting exports. A bad harvest or yield in one area brings localised famine and fuels migration. EU and MS policies belatedly reorientate to national self-sufficiency. The occasional flooding of the market with foodstuffs from outside the EU impacts farming communities. Due to frequent abandonment and rehabilitation of land areas in response to climatic shifts and weather events, EU farming, environmental and residential

designation schemes collapse. Food production dominates all suitable areas, with pockets of intensive growing in and around population centres. These shifting patterns of agriculture and pulses of abandonment and rehabilitation lead to critical problems in food security planning. Agrochemical fertilizers are largely unavailable but used where they can be sourced, with organic agriculture adopted by necessity; in other areas local waste streams and organic alternatives have been adopted. At a community level, agroecological methods are favoured and farmer-to-farmer learning is facilitated, but the wider circulation of good practice and innovation is hampered by poor communication technology, resource constraints and lack of EU research leadership. Attempts to rebuild and share stocks of heritage seeds between regions become urgent, as prior loss of diverse food species made food crops susceptible to pests and disease. Rapid re-farming taskforces are among first responders following disruptive events. Alternative models of food distribution focusing on shortening supply chains and reducing food miles are increasingly adopted. Diets include diverse nutritional sources such as insects, seaweed, weeds, and pests.

Over-extraction led to severe resource depletion in most areas. A strong ethos of environmental stewardship directs the management of remaining environmental resources largely brought under common ownership. There was little planning to mitigate climate change and ecological collapse. However, due to the economic downturn, slow collapse of industrial farming, polluting industry and air travel and ad-hoc uptake of low-intensity agroecological farming, there have been considerable environmental gains. These include biodiversity recovery, increased pollinators, groundwater and air quality improvements. Rewilding has occurred across abandoned and polluted areas. In places this is an unmanaged side-effect of deindustrialisation, in others, communities actively work to rewild former highways and car parks, unproductive land and brownfield sites deemed unsuitable for urban agriculture into biodiversity parks with replanting using locally adapted species focused on flood alleviation and urban cooling benefits. Climate benefits are speculated and assumed, although there is little research capacity to measure and understand co-benefits and trade-offs of different land management practices. Invasive species are a persistent problem. A hunting-and-trapping permissible 'right to food' culture keeps feral dog, deer, and cat populations in check, but also prevents any recovery of European wild fauna. There are concerns over resource conflict between regions, although the growing culture of deliberative, participatory democracy and co-ownership of common resources at local levels has built cultural-political capacity to ease these tensions. Local communities absorb and relearn indigenous and nondualist environmental ontologies of respect and reverence for nature and reframe 'natural resources' as 'gifts' and part of the community. Children teach parents environmental stewardship and eco-spirituality values.

Disaster preparedness and response

Due to an economically declining position and unremitting crisis events experienced by MSs, there is little bi-national, or EU-coordinated disaster support. State-level disaster response is largely focused on protecting administrative centres, government assets and political elites, and citizens expect little in terms of the state security contract. In its place, community-run 'civic protection and intervention forces' have flourished, with coordinated volunteers enabled by a 3-day working week. Communities adapt public buildings in strategic locations as shelters or bunkers during disasters, pre-equipped with simple survival technologies that can sustain the local population for a specific period. During disruptive events, communities know where to gather for warmth or cooling, mutual aid groups spring into action and neighbours reach out to those without essential utilities. All families keep emergency 'go bags' packed for crisis events requiring evacuation, funded by community schemes. With the collapse of the 'just-in-time' food system, households routinely store and rotate a few months' supply of food as finances permit. However, there is a poor forewarning of oncoming crises (including extreme weather but also food shortages) due both to a lack of investment in prediction technologies but also due to fake news/cyber-attacks. Getting to safe spaces in time can be challenging.

Key actors and their strategies

The EU exists as a forum to manage global conversations, solicit food imports and technological aid from global power centres and as a platform for regional negotiations over resource sharing and negotiating provisions for newly displaced communities. Municipalities and eco-regional governance organisations have taken over from member states as the key political actors; member state governments are largely symbolic as political entities but exist to facilitate some cultural and sporting events. Regional resource boards on food, water, building materials and health attempt to coordinate planning and circulation of resources. Cooperative coordination forums replace business lobby groups and companies are mainly cooperatives. Youth activist groups represent the rights of future generations. Local 'civic protection and intervention forces' manage emergency response.

European perspective

The EU has essentially deglobalized with a lack of exports across all sectors. This followed a lack of investment in developing resilient infrastructure to support existing industries to transition, as well as a lack of vision to build sustainable technology and resilient engineering sectors. The EU's common agricultural policy (CAP) has collapsed and available EU funding is minimal. The unanticipated 'municipal surge' caused initial tensions between member states and European-level governance, due to confusion over power and accountability.

Policy Implications for today

In the scenario of 'community-compensating resilience', communities more-or-less successfully stepped up to manage civic resilience activities in the face of challenges of poor economic and technological adaptation and infrastructural resilience, against a backdrop of ongoing crises driving a significant shift in expectations and understandings of the good life. This prompts reflection on how the positive aspects of the scenario could be enabled, and how negative aspects avoided, to produce the forms of community and municipal-level resilience envisaged in the scenario. These present-day policy implications revolve around **rescripting** the purpose, scale and policy-development linkages of EU research networks focused on urban, territorial, and regional policy development.

In general

- **Reorient** current work and focusing future funding towards practice-led research or '**living labs**' **experimenting** with and co-monitoring alternatives. This must include alternative municipal and local infrastructures (energy, water, waste, transport, housing); alternative shortened supply-chains (esp. food); community repair, maker, growing, 'low-tech' and social reproduction (e.g. community kitchen) spaces and initiatives; and experiments in managed degrowth and transition to sufficiency.
- **Scale-up and connect** existing institutional and research precedents or 'seeds'. The small and dispersed nature of existing research networks used to address relations between cities and regions and support EU policy on urban matters, prevents information-sharing and learning and cross-issue experimental initiatives. Emphasis and funding must be placed on better coordinated research, interventions and experiments.⁹

Enhancing societal resilience and crisis preparedness

- **Rewire** supply and economic networks to fund local sustainable economic diversification and environmental initiatives, such as governance of the circular economy and wider experiments with community wealth-building initiatives.¹⁰
- **Strengthen** connections between universities and their local communities, cities and regions through both community-based teaching and skills-development, and through community participation in research determination, governance and monitoring of experimental research-implementation projects.
- **Support** community cohesion, avoiding xenophobia, and incorporating the skills and knowledges of diverse communities through skills-sharing, and arts-based community building initiatives, by recognising historic and ongoing inequalities and injustices in the production and experience of multiple forms of crisis.

⁹ For example, coordination and expansion of projects REVES, <https://www.revesnetwork.eu/>; Circular cities <https://circular-cities-and-regions.ec.europa.eu/#:~:text=The%20CCRI%20is%20a%20collaboration,at%20local%20and%20regional%20levels,> and <https://www.polisnetwork.eu/>; and https://knowledge4policy.ec.europa.eu/home_en, amongst others.

¹⁰ E.g. work by [DEMOS on Preston](#), or to fund environmental restoration, e.g. <https://thenorthernforest.org.uk/>.

2.3. Scenario C: Tech-driven Dystopia

Figure 4. Scenario C: Tech-driven Dystopia.



Source: AI-generated with DALL-E 3.

Key Dimensions

HIGH Economic & Technological Adaptation, LOW Social & Environmental Stewardship

In Brief

In 2040, the march of technology and economic progress has forged a gaping chasm between the privileged few and the struggling masses, both within nations and on a global scale. Cities, once bustling hubs of humanity, have transformed into hyper-connected, automated metropolises, but this transformation comes at a significant cost to social equity, territorial balance and environmental sustainability. Our narrative raises a haunting question: Who reaps the rewards of this technological revolution, and who bears the burdens?

The world is shaped by the relentless pursuit of economic growth and technological innovation. This narrative unfolds in a reality where the intersection of high economic and technological adaptation meets low social and environmental stewardship, resulting in what can only be described as a 'Tech-Driven Dystopia'.

Key Drivers

By 2040, the world has witnessed breath-taking leaps in technological prowess and economic might. These advancements, however, have exacerbated pre-existing inequalities and environmental crises. A relentless pursuit of profit and efficiency has led to the privatization of vital services and a disregard for social and environmental well-being. The rise of automation and artificial intelligence has displaced countless jobs, fuelling social unrest and deepening income disparities.

Infrastructure, technology, and public services

Our world has been transformed by a relentless march of technological progress. This transformation is evident in the very fabric of our physical environment. Advanced materials and 'smart' fabrics have been harnessed, but their deployment has come with unintended consequences. Roads and bridges now prioritize the convenience of self-driving cars, while the needs of public transportation and pedestrian safety are neglected. Public buildings, once communal spaces, bear the unmistakable stamp of privatization, designed solely to maximize profits, leaving communities devoid of their former vitality. Coastal cities, once teeming with life, have either been abandoned or barricaded, giving rise to humanitarian crises as rising sea levels

encroached on homes and livelihoods. Life has become increasingly confined to sterile "boxes" as the physical environment unravelled.

Social and community systems, education, and values

In this brave new world, social and community systems have undergone a profound transformation. High-tech cities in affluent nations have evolved into autonomous hubs of urban farming and digitalization. In stark contrast, impoverished regions have reverted to basic, organic agriculture, lacking even rudimentary digital amenities. Surveillance has become an omnipresent shadow, and the very concept of privacy is on the brink of extinction. Broadband and digital networks are concentrated in affluent enclaves, leaving low-income and rural communities stranded in the digital darkness. The pursuit of new technologies has rendered social and environmental consequences irrelevant, as the digital divide has deepened and cultural experiences are reduced to augmented and virtual reality spectacles. Educational institutions have shifted focus, veering towards privatization and a singular obsession with technology, neglecting essential social skills and values.

Economy, health and environment

Economic progress has come at a grievous cost. Global supply chains have been streamlined to perfection but are dangerously susceptible to disruptions and exploitative practices. Resource depletion accelerated, and public spaces for community gatherings have been seized and privatized. Local NGOs, once pillars of support, have now withered away, and pollution and waste have spiralled out of control, contaminating air, water, and soil. Financial innovations have ushered in complexity and risk, while environmental regulations have crumbled, and zoning laws are relaxed in the name of growth. Vulnerable communities bear the brunt of this economic drive, their displacement overshadowed by the might of tech industry titans.

Disaster preparedness and response

As climate change has worsened due to a lack of environmental focus, natural disasters have become more frequent and devastating. The very foundations of social organization have crumbled, leading to low civic resilience and a surge in mental health issues. In this dystopian panorama, the relentless pursuit of technological and economic advancement has come at the grievous cost of social equity and environmental sustainability, leaving humanity grappling with the consequences of its unchecked pursuit of progress.

Key actors and their strategies/activities

In the realm of physical infrastructure, a cast of diverse characters play their parts. Private donors, primarily representing tech companies, pour vast sums into ambitious projects, their sights firmly fixed on technological advancement. Construction companies, eager to implement tech-centric designs, occasionally face dire consequences as haste eclipses caution. Materials' scientists push the boundaries of innovation without adequate testing, while policymakers craft laws that unabashedly favour technological "progress". Workers unions valiantly advocate for labour rights but often find themselves on the fringes of the conversation. Various levels of government grapple with the complex task of implementing and regulating tech-centric infrastructure. Independent city planning consultants offer sage advice, but their wisdom is frequently disregarded. Healthcare professionals labour under the weight of disparities in healthcare infrastructure, and academic institutions, once revered bastions of knowledge, carry on their research, often side-lined in the relentless quest for progress.

The world of digital infrastructure is a battleground of competing interests. Intergovernmental clusters struggled to promote international tech standards but faced an uphill battle against powerful forces. AI and tech companies spearheaded the development and deployment of digital technologies, while government tech regulation entities waged a valiant struggle to regulate the breakneck pace of technological advancement. Blockchain and crypto entities exerted their influence on digital transactions, shaping the landscape of digital finance. Internet service providers, frequently driven by profit motives, prioritized affluent areas, leaving digital deserts in their wake. Academic institutions diligently researched the intricacies of digital infrastructure, and non-profits tirelessly advocated for digital equity, although their voices often went unheard.

In the arena of public services, a complex interplay of actors shape the landscape. Artists and cultural workers, once the lifeblood of cultural expression, find themselves marginalized in a society driven by technology. Government agencies, now providers of tech-driven public services, operate with varying degrees of efficiency and accountability, often caught in the crossfire of profit-driven agendas. Private companies contracted to deliver public services, prioritize profit margins over the common good, and labour unions continue to champion equitable public services, even as their influence wane. Community groups fight tenaciously for better and more equitable public services, though they often find themselves relegated to the side-lines.

In the realm of cultural assets, a shadowy "Ministry of Truth" assume control over the narrative and information, moulding the collective consciousness to its whims. Heritage trusts grapple with the daunting challenge of preserving cultural heritage in a rapidly digitizing world, while tech and entertainment behemoths monopolize the production and dissemination of culture, weaving it seamlessly into the fabric of their profit-driven agendas.

The tapestry of community resources features a diverse ensemble of actors. Vocational skills groups offer a lifeline through alternative skills training, bridging the gaps left by automation. Faith-based organizations step up to provide crucial community support in these trying times, their role becoming increasingly vital. Meanwhile, land and property owners, centralized and powerful, contribute to the ever-deepening well of inequality, altering the very landscapes of the communities they inhabit.

In the corridors of regulatory and policy frameworks, powerful forces clash. Big tech companies, the titans of industry, wield immense influence, shaping policy to their advantage. Government agencies struggle valiantly to regulate the unbridled march of tech advancements, often playing catch-up. Venture capital and bankers provide the lifeblood for tech-centric projects, funding them with gusto and further entrenching their influence.

Knowledge assets have seen a changing of the guard. Universities, once the primary source of knowledge and innovation, has shifted their focus to tech development, side-lining societal needs. AI-assisted robots and language models generate the majority of new knowledge, perpetuating the digital dominance. Media outlets hold sway over public awareness and narrative, weaving intricate webs of influence that shape perceptions and opinions.

The tapestry of social and community values is rewoven in the face of technological progress. The traditional fabric of family and neighbourly bonds has eroded as the primary social units weakened. Digital nomads have emerged as the embodiment of the new, mobile workforce, untethered by geographical constraints. Schools have shifted their focus from nurturing imagination to churning out cogs for the capitalist machine. Social groups, while active in their localities, find themselves struggling against the tide of tech-driven isolation, their efforts sometimes lost in the relentless current of progress.

These key actors navigate a treacherous landscape dominated by the ceaseless drive for technological and economic advancement, often sacrificing the well-being of society and the environment on the altar of progress.

European Perspective

From the vantage point of the European Union in the year 2040, the world is a complex and fractured landscape. The European Union, ever the conscientious juggler, strives to balance technological advancement with social welfare. However, it faces internal divisions that have diminished its once-mighty influence. In a world where aggressive economies prioritize unbridled growth, the EU has become a secondary player on the global stage. Within the European Union, internal strife simmers as member states chart divergent courses in their pursuit of economic growth and their commitment to social and environmental concerns. Northern European nations champion sustainability, while others remain steadfast in their pursuit of economic prosperity, resulting in simmering tensions within the union. The relentless march of technology and the allure of economic progress have cast a shadow over the values of equity and sustainability.

Policy implications for today

In this scenario, we find ourselves in 2040 in a world marked by an unrelenting quest for economic growth and technological innovation, resulting in what can only be described as a "Tech-Driven Dystopia." In this future, the pursuit of economic and technological advancement create a stark divide between the privileged few and the struggling masses, both within nations and globally. The consequences of this pursuit are starkly evident, as cities have transformed into highly automated, hyper-connected metropolises, but at the profound cost of social equity, territorial balance and environmental sustainability. This narrative raises a thought-provoking question: Who would gain from this technological revolution, and who would shoulder the consequences? Based on such developments we consider the following implications for policy-making today.

In general

- **Addressing economic and technological disparities.** Implement policies to promote equitable access to education, digital resources, and economic opportunities to bridge the digital divide. Promote responsible innovation that considers the social and environmental impacts of technological advancements. Encourage international collaboration to ensure that technological progress benefits all nations, with a focus on technology transfer to developing countries.

- **Environmental stewardship and sustainability.** Strengthen and enforce environmental regulations to mitigate resource depletion and combat climate change. Invest in sustainable urban and spatial planning and infrastructure that prioritizes public transportation, pedestrian safety, and eco-friendly construction. Promote renewable energy sources and reduce reliance on fossil fuels to protect the environment and reduce greenhouse gas emissions.
- **Preserving cultural assets and values.** Support cultural preservation efforts and ensure that corporate sponsorship does not unduly influence cultural narratives. Foster educational institutions that prioritize a well-rounded education, including soft skills and social values alongside technological training. Encourage the arts and cultural diversity through public funding to maintain cultural richness.
- **Inclusive knowledge and research.** Encourage research that addresses the broader societal needs and promotes inclusive technological development. Support public educational institutions to enhance accessibility and maintain high educational standards. Foster a diverse and inclusive research community that reflects a broader range of perspectives and needs.
- **Global collaboration and diplomacy.** Strengthen international cooperation to address global challenges, including climate change, technology transfer, and equitable access to resources. Support international bodies like the United Nations in enforcing global standards and promoting peace and cooperation among nations. Advocate for fair trade practices that benefit all nations and reduce global economic disparities.
- **Balancing economic and social priorities in the European Union.** Encourage dialogue and cooperation within the European Union to reconcile economic prosperity with social welfare priorities. Facilitate sustainable practices and innovation in Northern European nations while addressing economic concerns in other member states. Promote solidarity and equitable development within the EU to reduce internal divisions and enhance global influence.

Enhancing societal resilience and crisis preparedness

- **Resilient public services.** Ensure that essential public services like healthcare, education, and public transportation remain accessible, affordable, and of high quality. Regulate the privatization of public services to prevent profit-driven motives from compromising service quality and accessibility. Invest in AI and technology with a focus on reducing biases in healthcare and policing, enhancing service efficiency while maintaining fairness.
- **Community resources and sustainability.** Prevent the privatization of community resources by implementing policies that prioritize public ownership and access. Support local NGOs and grassroots initiatives to address environmental issues, social challenges, and community development. Promote sustainable practices in resource management, waste reduction, and pollution control to protect the environment. Encourage sustainable and regenerative agricultural practices by providing incentives and support for local farmers and agricultural cooperatives. This can include grants for adopting environmentally friendly farming techniques, promoting organic farming, and ensuring fair pricing for agricultural products. It is critical to involve the voice of the farming community in any initiatives and policy change.
- **Robust regulatory and policy frameworks.** Strengthen financial regulations to mitigate risks associated with complex financial innovations. Enforce zoning laws and land-use policies that balance growth with environmental protection and community well-being. Ensure transparency and accountability in policymaking, reducing the influence of powerful tech industry players.
- **Promoting social cohesion and resilience.** Foster a sense of community and social cohesion through policies that support local initiatives, cultural exchanges, and community engagement. Prioritize mental health services and disaster preparedness to enhance civic resilience in the face of natural disasters and social challenges. Promote policies that emphasize shared values, reduce social divides, and encourage community-building efforts.

2.4. Scenario D: Europe in survival mode

2 Figure 5. Scenario D: Europe in survival mode.



Source: AI-generated with DALL-E 3.

Key dimensions

LOW Economic & Technological Adaptation, LOW Social & Environmental Stewardship

In brief

In a world marked by persistent disasters and conflicts in the year 2040, the primary focus shifts towards embracing low-tech innovations to ensure the most basic living conditions. Several fundamental societal institutions and services face significant dysfunction. With a notable absence of effective and legitimate governance structures at higher echelons, individuals find themselves turning to grassroots networks, such as family-centric groups and community-driven initiatives. Most individuals grapple with pressing concerns related to their well-being and physical safety.

Lack of community cohesion, participatory local democracy, social justice, and environmental stewardship prevail, while the lofty promises of technological advancements have not materialized into improved global living conditions. Instead, the unintended consequences of technological progress, particularly in fields such as AI, geo-engineering, and medicine, coupled with the misuse of advanced technologies by both state and non-state actors, gave rise to monumental environmental catastrophes and the erosion of social well-being. These calamities precipitate economic downturns that further exacerbate the pre-existing social and environmental challenges, creating a disheartening cycle of decline. Policymakers consistently demonstrate an inability to foresee, prevent, or effectively mitigate these extensive crises, perpetuating the cycle of instability and uncertainty.

Key drivers

A series of systemic crises have degraded basic societal functions. In response, people in 2040 are largely forced to rely on themselves. While a small affluent share of society can keep up its standard of living, most people suffer from a degradation of living conditions unprecedented in Europe since the end of World War II.

Infrastructure, technology and public services

During economic downturns, a protracted lack of investment in fundamental public infrastructures, including electricity grids, transport networks, and public buildings, becomes glaringly evident. Despite high expectations, digital technologies prove to be less reliable than anticipated. Digital networks experience recurrent disruptions stemming from both intentional and unintentional sources, including cyberattacks and hardware failures. The unrestrained nature of artificial intelligence introduces more threats than benefits,

posing a formidable challenge to human well-being. Overreliance on digital tools leaves many individuals bereft of essential skills, such as offline navigation and obtaining information from traditional sources like libraries.

In the face of dwindling resources, healthcare, policing, and fire services suffer from underfunding, inefficiency, and unreliability. Disaster management authorities grapple with the inability to address continuous crises, exacerbating vulnerabilities within communities. With limited technological and governmental support, societies find themselves highly susceptible to natural disasters and emergencies. Essential societal services such as healthcare, education, and transport become the domain of private entities, accessible only to the fortunate segment of society unaffected by economic downturns or, in some instances, those who have profited from them.

Social and community systems, education and values

Heritage assets, once the pride of our shared legacy, languish in neglect, crumbling away into irreparable decay, eliciting disdain from future generations. Countless cultural treasures, confined solely to digital realms lacking adequate safeguards, fall victim to meticulously orchestrated cyber assaults. The remnants that endure are predominantly held and governed by a select elite, consolidating cultural wealth in the hands of the affluent few.

Educational institutions grapple with inadequate funding. The neglect of educational systems inadvertently sown the seeds of new social divides. The pervasive reliance on digital technologies leaves many bereft of foundational skills—basic math, foreign languages, and more. Simultaneously, the scarcity-driven economy fosters a revival of skills centred on improvisation, experimentation, and bricolage.

In the absence of robust social and environmental stewardship, a shift towards minimalism and resourcefulness emerges. Communities increasingly turn to traditional wisdom and practices to tackle local challenges, spanning agriculture to conflict resolution. Yet, the feasibility of such endeavours often proves elusive, prompting mass migrations within Europe. The destinations of these migrations witness a surge in xenophobia, even towards fellow citizens from different regions, fuelled by social tensions exacerbated by mounting birth rates resulting from escalating child mortality and fractured old-age provision systems.

The erosion of cultural knowledge contributes to a pervasive indifference to pressing social and environmental issues, hastening the fading of Europe's historical memory. As xenophobia and ethnic strife intensify, the spectre of Europe reliving its darkest historical chapters becomes palpable. Amidst a backdrop where some succumb to apathy or follow charismatic new religious leaders promising salvation, others rediscover reservoirs of resilience—emphasizing values like modesty, faith, adaptability, and familial solidarity. Faced with limited technological and economic resources, communities pivot towards localization, prioritizing robust local support systems where neighbours extend a helping hand in times of need.

Environment, economy and health

The exacerbation of climate change effects amplifies the severity and frequency of extreme weather events, resulting in common occurrences of blackouts and the collapse of inadequately maintained structures and infrastructure, such as bridges, dams, and power plants—emerging as primary contributors to environmental disasters. Neglected environmental stewardship, encompassing widespread deforestation and unregulated pollution from novel chemicals and biological agents, further escalates hazards. The aftermath of disasters unveils a disheartening reality: not all cities are reconstructed, giving rise to the proliferation of ghost cities and hinterland.

The erosion of environmental regulations opens the floodgates to increased pollution, with a particularly acute issue arising from the rapid development of novel chemical and biological products propelled by Artificial Intelligence. Unfortunately, these advancements swiftly reveal their perilous nature, posing threats to human health, wildlife, and plant life alike. As an alarming instance, an AI-driven fertilizer triggers the extinction of all honeybees in Europe, resulting in a cascading crisis for the continent's restored food production.

Amidst a landscape marked by government inertia, the vacuum is at least partly filled by grassroots initiatives seizing the mantle of problem-solving and decision-making. These community-driven endeavours, while effective in tackling local concerns, grapple with significant limitations when confronted by global challenges. The decentralization of governance mechanisms underscores a shift towards localized solutions, acknowledging the imperative for community-led action in the face of inadequate governmental responsiveness.

Key actors and their strategies/activities

Prepping, once a niche subculture, has transformed into a mainstream lifestyle, marking a significant shift in societal norms. The burgeoning industry catering to the demand for crisis and disaster-related products and services—ranging from private shelters and emergency energy generators to advanced home security systems—now propels the economy. In this paradigm shift, companies focusing on essential goods and services have eclipsed the prominence of those offering convenience, entertainment, or luxury items.

At the grassroots level, initiatives aimed at rebuilding communities' post-disaster are gaining prominence, relying predominantly on cost-effective, low-tech solutions. Notably, these initiatives, born out of a lack of trust, often operate independently of governmental authorities. Some even employ armed militias to safeguard local communities, reflecting a heightened sense of self-reliance.

In an era defined by perpetual crisis, networks built on strong ties, such as family and relatives, are re-emerging as crucial components of community resilience. However, this resurgence is not without its drawbacks, as widespread xenophobia has taken root in certain areas, manifesting in alarming incidents of pogroms and violent ethnic conflicts.

Capitalizing on the breakdown of global supply chains, local producers have emerged as key beneficiaries. Their products, predominantly fashioned from locally available or recycled materials, drive the market. Transactions are increasingly conducted through local currencies, symbolizing a departure from traditional economic systems.

Simultaneously, the landscape is witnessing the rise of new religious leaders capable of amassing large followings. These religious groups are expanding their influence by assuming core state functions, including healthcare, education, and local policing, reshaping the societal fabric in profound ways.

European perspective

In an era marked by perpetual crises, Europe gradually redirects its focus inward, earnestly addressing its most pressing environmental, economic, and social challenges. The predominant political agenda centres on averting the rapid dissolution of multiple European states and the European Union as a cohesive entity. This political fragility arises from a burgeoning trend where disillusioned citizens, disenchanted with the established political system, increasingly turn their gaze towards local leaders. Consequently, separatist movements gain considerable influence across the European landscape, and in certain nations, the spectre of civil conflict looms ominously.

This inward shift has a profound impact on Europe's global engagement. Participation in global trade, travel, financial interactions, and cultural exchange regresses to levels reminiscent of the 1970s. Simultaneously, critical trans-regional challenges like ecological degradation, mass migration, and AI governance persist, necessitating a minimum threshold of global governance. Other world regions grapple with their own environmental crises, rendering them incapable of capitalizing on Europe's geopolitical vulnerabilities. Nonetheless, amidst this turmoil, a handful of new global players emerge, with Africa standing out as a particularly adaptive and resilient entity. It evolves into an increasingly pivotal trade partner, while also assuming the role of a strategic-political competitor on the global stage.

Policy implications for today

This grim scenario underscores the multifaceted nature of environmental, technological, and social governance and offers critical insights for policymakers today.

In general

- **Environmental and economic protection.** Safeguarding Europe's well-being and prosperity hinges on the preservation of its environmental and economic foundations. Urgent investments in research and innovation are required to prevent further ecosystem degradation, support decisive climate action, and enhance anticipatory capabilities across all levels. Technological and social innovations are indispensable for averting unprecedented disasters that could trigger a cascading series of economic crises and social strife.
- **Responsible technological innovation.** Policymakers must ensure that technological advancements align with the broader interests of society. Robust policies governing AI and other cutting-edge technologies are imperative. Bold policy actions in these domains can effectively mitigate or even prevent the drivers of this dire scenario.

- **Addressing social challenges.** Europe's current social challenges serve as a fertile ground for the distressing developments outlined in this scenario. Research and innovation should actively contribute to mitigating the growing economic disparities and modernizing educational systems.

Enhancing societal resilience and crisis preparedness

- **Investments in adaptability.** Policies need to prepare for the eventuality that the negative drivers of this scenario might not be mitigated effectively. Above all, this implies massive investments in the adaptability of the economy, political institutions, and civil society.
- **Anticipatory resilience.** Strengthening resilience appears only feasible at the expense of short-term maximizing efficiency. Even though building resilience is expected to pay off in this scenario, it is not for free per se, but requires significant investments from all sides. This also includes a bold investment in resilience research.
- **Holistic policy approach.** Strengthening Europe's systemic resilience mandates breaking down institutional silos, combating narrow self-interest politics, and promoting cross-cutting, multi-stakeholder policy initiatives. Bold, mission-oriented efforts centred on key dimensions of resilience within Europe's research and development sector can provide a powerful impetus. When necessary, political institutions should be restructured to better address contemporary challenges. This paradigm shift requires heightened awareness of European society's vulnerabilities and the driving forces behind them, paving the way for the elevation of societal resilience as a top priority in European policy agendas.
- **Individual and community resilience.** Strengthening the resilience of individuals and communities necessitates fostering adaptive competencies through education, such as promoting experimentation and improvisation skills. Research and innovation actors should prioritize solutions that directly enhance the resilience of European citizens and communities.

3. IMPLICATIONS FOR EU POLICY-MAKERS ON CIVIC RESILIENCE

We defined civic resilience as the ability of a community, city, or society to prepare for, respond to, recover from, and adapt to adversities, challenges, or disruptions. There are four important aspects to this:

- What is adversity, challenge or disruption relates to some kind of perception of what normal social functioning is – and varies for individuals as well as communities and social groups.
- Normal social functioning is assured by public investments, infrastructures and functions which are valued differently by different individuals and social groups.
- Preparedness, response, recovery, adaptation and change depend on material, social and cultural conditions, which themselves are valued differently by different individuals and social groups.
- Just like many public goods, there are important market failures in the provision of resilience.

We distinguish three levels of relevant provisions, which correspond to three different meanings of resilience:

- Resilience as strength – this can be material, organizational, cultural, or of other forms. Its characteristic is that its aim is not to be challenged. It either discourages challenge or prevails so easily that the challenge is not felt. Typically, this is the form of resilience that applies to infrastructure. It is aimed for in military and security services. It is one of the social functions of competition, be it for profit or for other rewards e.g. by sports. At the level of individuals it is achieved through training.
- Resilience as a moral commitment to normal social functioning and the public services that functions that assure it – This is a cultural characteristic that societies and communities transmit through socialization, education and training. It can only be verified when tested. It is seen as an important complement to strength, the use of which should be avoided because it implies disaster.
- Resilience as a moral commitment to survival. This is close to what is understood as hope: an essential characteristic of humanity – and maybe life in general. It is a moral commitment to survival beyond any form of social functioning. When this becomes necessary, individuals may prevail (“hope dies last”¹¹), but society has collapsed, and civic resilience has no meaning.

How do technology and the environment relate to civic resilience? They are both sources of crisis as well as resources that can help avoid crises and minimize their impact. Environmental degradation and climate change are sources of multidimensional crises relating to disasters, resource constraints, health and living conditions. Technological innovation can be a source of help in the presence of crises but could also fuel crises and exacerbate their effects. Similarly, environmentally friendly nature-based solutions can be beneficial for crisis prevention and recovery.

In the first scenario, the strength offered by technology and good governance is such that resilience is never tested and never revealed. Environmental catastrophes are prevented and responded to swiftly and easily thanks to technology and organization. In a world that does not use resilience one wonders why resilience would be valued? Relevant cultural pursuits and preparedness drills are very important there.

In our second scenario, the material aspects of strength have deteriorated, and communities have stepped in to compensate. Social, organizational and cultural norms prevail and the good governance of technology and the environment is a key aspect of resilience. The moral commitment to normal social functioning is strengthened at every opportunity and every challenge makes it stronger.

In our third scenario, there is considerable material strength, but it is enjoyed only by certain social groups. The resilience of many people and communities is frequently tested and normal social functioning is continuously at risk from environmental catastrophes or social disaffection. This system may stay stable while technology compensates for the lack of good governance, but is very sensitive to crises, for those most resilient are associated with different systemic goals and values than those with strength.

In our fourth scenario, hope has taken over and society has fractured in major ways. Resilience means radically different things to different social groups, and emerging antagonisms place communities in situations in which they often cannot recover from.

¹¹ The origins of the idiom are subject to debate. One important source is the ancient Greek myth of Pandora's box.

Policy implications

Each scenario provides a different point of view towards the situation in the EU today and what could and should be done by EU R&I policy, and by related policy fields that will affect the efficacy of the R&I policy pursuits towards civic resilience. Together they point us to the following policy recommendations:

R&I policy should enable and promote crisis prevention and preparedness – environmental monitoring and earth science are important, as are their connections to civil protection and crisis management practices. Technological innovations are potentially very important here and so is technology assessment, aiming to minimize the negative effects of technology use, while maximizing the positive ones.

R&I policy should aim to strengthen the resilience of infrastructure and to enable a balance between the infrastructure needs of society and environmental and ecosystem effects from its construction, use and decommissioning. Innovations in materials and construction technologies and techniques are important as are innovations in decommissioning and recycling technologies and processes, and in the monitoring and management of the state of infrastructures and in their use.

Keeping in mind the unpredictability of the social effects of technology and the importance of public services and local actors for civic resilience, it is important to engage broadly with actors responsible for public services in the definition of R&I policy agendas. Thus R&I policy can:

- stimulate radical social innovation through “glocal” (local but with global impact) creative initiatives, e.g. via living labs,
- identify and define boundaries for upcoming cutting-edge technologies implantation, prioritizing social stability and welfare,
- define agendas in resilience research, oriented to explore new potential needs and new ways of addressing existing needs, and
- to make existing public services more effective and resilient, for instance via education and health.

In addition to R&I agendas, civic resilience can be strengthened by improving governance, local democracy, public services and education policies to:

- improve social empathy - addressing societal needs through a more human-centered-business, UX-oriented, bottom-up vision. Prevent social anomy and get closer to the citizens´ daily reality and priorities;
- prevent ecosystem degradation - by promoting environmental stewardship, mainly stimulating bottom-up local collaborative and innovative initiatives;
- prevent cultural and moral degradation by promoting diversity, internationalization, and the preservation of cultural heritage and the basic European set of values: equality, law and fraternity; reinforcing democracy.

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ANNEX I: METHODOLOGICAL NOTE

Within this Foresight on Demand (FoD) project, a small expert team we called 'core group' was formed. The members were known for both their foresight expertise and thematic expertise. Some experts were part of the FoD consortium, some were external scholars or consultants, always experienced analysts.

The first step for the core group was to identify from rapid exploration paper and other sources further factors to demarcate the topic. Through this horizon scanning some 30 factors with relevance to the future development of social confrontations were identified. Then a creative categorisation was used for clustering the factors and to make sure that each category was served.

Subsequently, the factor collection was fed into a background paper for the first workshop, presenting the factors and the scenario structure for four scenarios. This workshop and a second one were used to connect and adjust the factors to each scenario through discussion with the participants.

External participants, a selected group of experts working under volunteer terms which we called "extended network", were also taking part. Accordingly, the expert team developed four scenario narrative drafts which were used as a basis to explore the first implications for R&I policy in a third workshop. Subsequently, the scenarios were explored further and as input for the dissemination event of the project, which served to collect more inputs for R&I policy implications.

Factors of change

While the main scenario dimensions provide the structure for the scenario work, the factors of change provide ideas on possible future developments and issues to be considered in the scenarios. In the workshops, participants **related and adapted the factors** to the dimensions of each scenario and **proposed new factors and issues** to be addressed in each scenario.

For 3 weeks the core group ran a horizon scanning and open brainstorming to map all the key aspects to be addressed according to the expertise of the core group.

Civic resilience refers to the ability of a community, city, or society to prepare for, respond to, recover from, and adapt to adversities, challenges, or disruptions. Since it encompasses a combination of physical, social, economic, and environmental aspects, these **AREAS for civic resilience** were considered as starting point:

1. **Infrastructure & Built Environment:** Ensuring that buildings, transportation, utilities, and other physical assets can withstand and recover from disruptions.
2. **Social Systems & Community Cohesion:** Building strong social ties, ensuring equitable access to resources, and promoting a sense of community belonging.
3. **Economic Systems:** Having diversified local economies, job opportunities, and financial safety nets for residents.
4. **Environmental Stewardship:** Managing and protecting natural resources, implementing sustainable practices, and preparing for environmental changes.
5. **Governance & Leadership:** Having effective, transparent, and inclusive governance structures in place that prioritize resilience.
6. **Health & Well-being:** Ensuring access to healthcare, promoting healthy lifestyles, and preparing for public health crises.
7. **Information & Communication:** Ensuring that residents have access to accurate and timely information during disruptions and can communicate with each other and with authorities.
8. **Education & Training:** Providing residents with the knowledge and skills they need to contribute to resilience efforts.

Given the current global trends and challenges, the following are some of **the strongest POTENTIAL STRESSORS for civic resilience in the respective areas until 2040:**

1. **Infrastructure & Built Environment:**
 - **Climate Change:** Extreme weather events such as hurricanes, floods, and droughts can damage infrastructure.
 - **Urbanization:** Rapid urban growth without proper planning can strain existing infrastructure.
2. **Social Systems & Community Cohesion:**

- **Social Inequality:** Disparities in wealth, access to resources, and opportunities can lead to social tensions.
 - **Migration:** Large-scale migration, whether due to climate change, conflict, or economic reasons, can challenge social cohesion.
3. **Economic Systems:**
 - **Economic Recessions:** Global economic downturns can lead to unemployment, business closures, and reduced government revenues.
 - **Technological Disruption:** The rise of automation and artificial intelligence can reshape job markets.
 4. **Environmental Stewardship:**
 - **Loss of Biodiversity:** Deforestation, pollution, and other factors are leading to the loss of plant and animal species.
 - **Resource Depletion:** Over-extraction of resources such as water or minerals can lead to scarcity.
 5. **Governance & Leadership:**
 - **Political Instability:** Internal conflicts, corruption, and lack of trust in institutions can weaken governance structures.
 - **Cyber Threats:** Cyberattacks can disrupt essential services and undermine public trust.
 6. **Health & Well-being:**
 - **Pandemics:** As witnessed with COVID-19, global health crises can strain healthcare systems and disrupt daily life.
 - **Mental Health:** Increasing awareness and prevalence of mental health issues can challenge societal well-being.
 7. **Information & Communication:**
 - **Misinformation/Disinformation:** The spread of false information can undermine trust and lead to poor decision-making.
 - **Technology Failures:** Dependence on digital systems makes societies vulnerable to system failures or outages.
 8. **Education & Training:**
 - **Access to Quality Education:** Disparities in education quality and access can lead to unequal opportunities.
 - **Changing Skill Demands:** As economies evolve, there's a need for continuous learning and adaptation to new job requirements.

It's important to note that while these stressors present significant challenges, they also offer opportunities for innovation, collaboration, and strengthening civic resilience. Proper planning, investments, and collective action can help address these challenges effectively.

Historically, the response to stressors in the areas of civic resilience varies greatly based on a multitude of factors, including political will, economic strength, technological capabilities, societal awareness, and more. Based on past experiences and patterns, the following generalizations can be made about **which AREAS are more or less likely TO BE ADRESSED** appropriately:

*** More Likely to be Addressed Appropriately:**

1. **Infrastructure & Built Environment:** Infrastructure projects, especially those related to transportation, utilities, and critical structures, often receive significant attention and funding. For instance, after major natural disasters, there is usually a concerted effort to rebuild and often enhance infrastructure.
2. **Economic Systems:** Economic downturns and disruptions often prompt swift and large-scale responses from governments and institutions, given the immediate and tangible impacts on citizens and businesses. Economic incentives, policies, and bailouts are common tools to address economic crises.
3. **Information & Communication:** With the rise of digital technology, there's been significant investment in improving communication networks and information dissemination. The importance of maintaining functioning communication systems is broadly recognized.
4. **Health & Well-being:** Major health crises, like pandemics, often lead to global collaborative responses. Organizations like the World Health Organization and national health agencies have historically ramped up efforts to combat widespread health threats.

***Less Likely to be Addressed Appropriately:**

1. **Social Systems & Community Cohesion:** Issues like social inequality, community disintegration, and migration-related tensions are multifaceted and deeply entrenched, making them difficult to address comprehensively.
2. **Environmental Stewardship:** Despite increasing awareness of environmental issues, comprehensive action on matters like climate change, biodiversity loss, and resource depletion is often slow. This is due to a combination of political, economic, and societal factors.
3. **Governance & Leadership:** Political instability, corruption, and systemic governance challenges are persistent issues in many regions. Addressing them requires profound systemic changes, which can be difficult to implement.
4. **Education & Training:** While there's broad recognition of the importance of education, disparities in quality, access, and relevance persist. Systemic changes in education take time and can be influenced by various sociopolitical factors.

It's essential to note that these generalizations are broad and that the efficacy of responses varies significantly across different regions, countries, and localities. Historical patterns do not always dictate future responses, especially as global awareness and collaboration evolve.

If the patterns of addressing civic resilience continue as historically observed, **SEVERAL OUTCOMES COULD EMERGE:**

****For Areas More Likely to be Addressed Appropriately:**

1. **Infrastructure & Built Environment:** Cities might become more physically resilient to natural disasters, and transportation systems may improve. However, if only immediate issues are addressed without foresight, there may be infrastructure that's ill-suited for long-term challenges like rising sea levels or changing weather patterns.
2. **Economic Systems:** While there might be quick recovery mechanisms from downturns, underlying systemic economic inequalities might persist or even worsen. Rapid technological advancements without proper preparation might lead to societal challenges like job displacement.
3. **Information & Communication:** While the connectivity might improve globally, the rise of digital systems could increase vulnerabilities to cyberattacks or technology-dependent societal disruptions.
4. **Health & Well-being:** There could be a rapid response to immediate health threats, but chronic issues and systemic health disparities might remain unaddressed. Over-dependence on pharmaceutical solutions might overshadow preventive and holistic approaches.

****For Areas Less Likely to be Addressed Appropriately:**

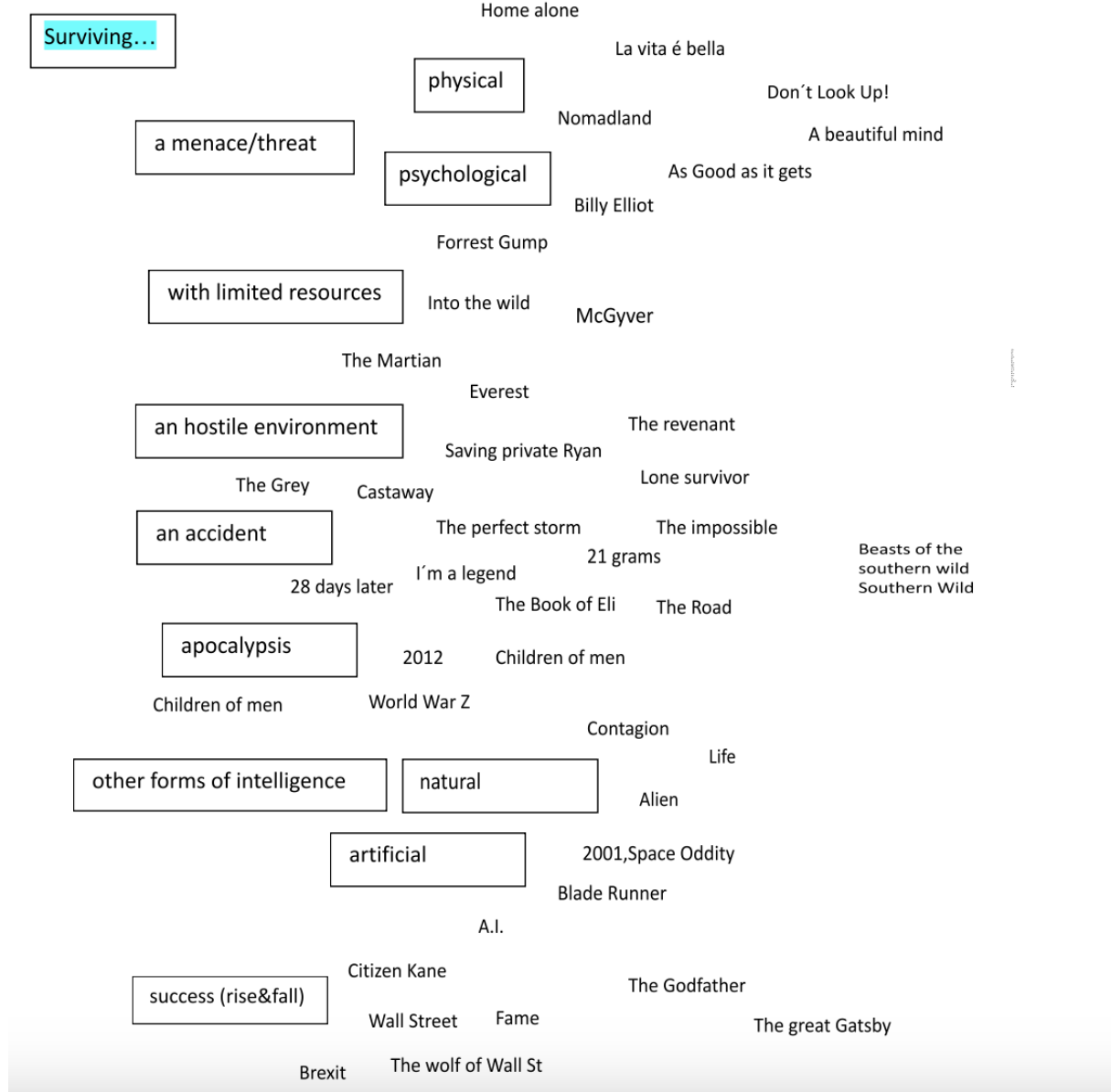
1. **Social Systems & Community Cohesion:** Persistent social inequality and lack of community cohesion could lead to civil unrest, increased crime rates, and potentially even conflicts or social upheavals.
2. **Environmental Stewardship:** The continued degradation of the environment could accelerate the impacts of climate change, leading to more frequent and severe natural disasters, loss of habitable land, food and water shortages, and mass migrations.
3. **Governance & Leadership:** Persistent governance issues could lead to decreased public trust in institutions, hampering effective policymaking and exacerbating societal divisions.
4. **Education & Training:** Disparities in education could widen the skill gap, with certain populations being ill-prepared for future job markets. This could further exacerbate economic inequalities and social tensions.

*****General Outcomes:**

1. **Increased Global Inequalities:** Some regions or countries that proactively address these challenges might progress faster, creating a wider gap between developed and developing areas.
2. **Migration Pressures:** Areas facing economic, environmental, or social challenges might see increased out-migration, putting pressure on receiving areas, potentially leading to conflicts or integration challenges.
3. **Collaboration & Innovation:** On a positive note, as challenges become more evident, there might be increased global collaboration, leading to innovative solutions and shared resources.
4. **Rise of Grassroots Movements:** Historically underserved or unaddressed areas might see a rise in grassroots movements demanding change and driving community-based solutions.

In essence, while some areas of civic resilience might see improvements, others could lead to cascading effects that impact even the well-addressed sectors. The interconnectedness of these areas implies that a holistic approach is essential for long-term global stability and progress.

RESILIENCE IN visual POP CULTURE.. a MindMap:





FORESIGHT ON DEMAND IN SCIENCE, TECHNOLOGY, RESEARCH AND INNOVATION
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