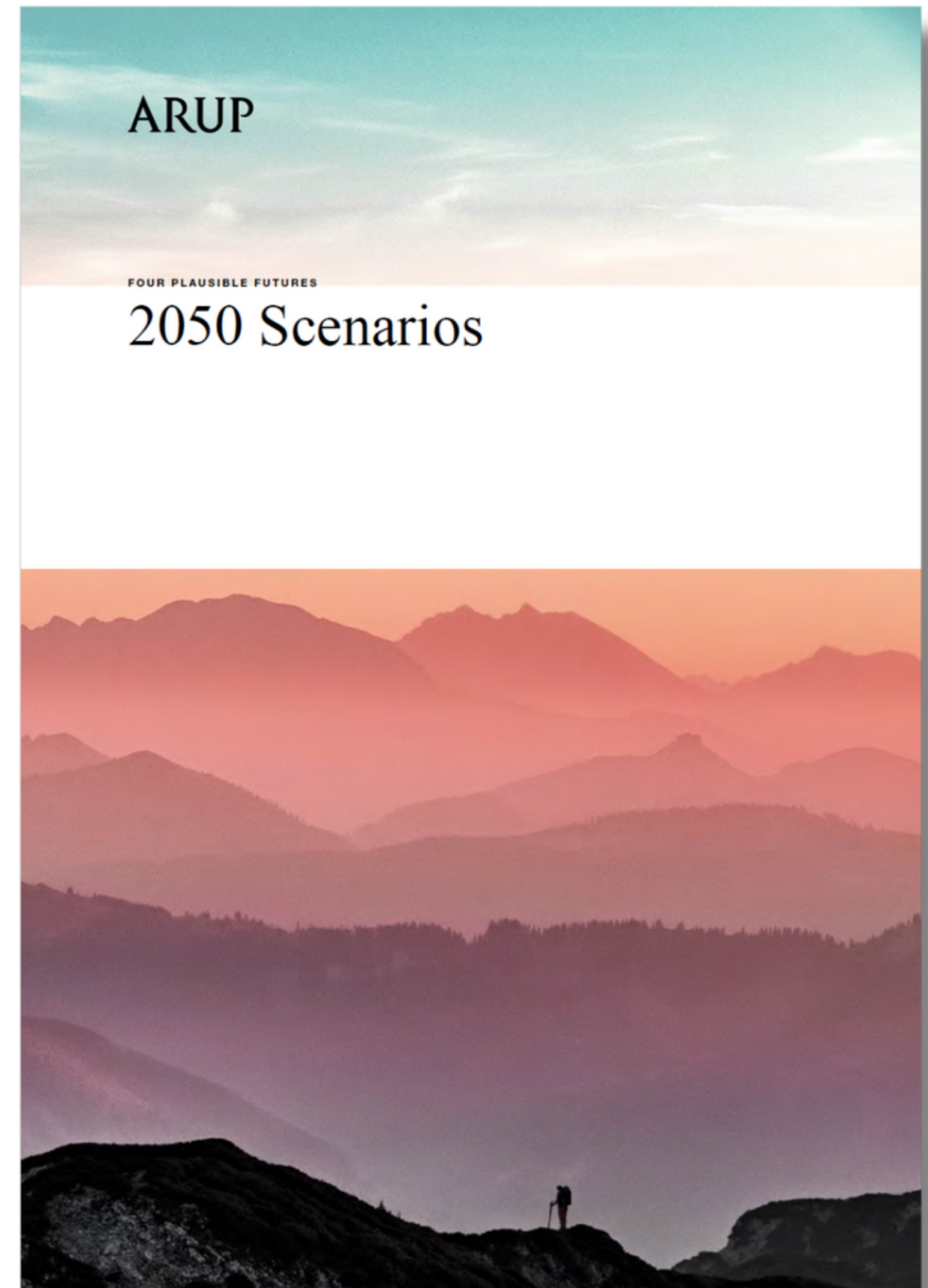


Applying social cohesion to ARUP's *2050 Scenarios*

AMANDA ROUNSAVILLE WELSH



Summary

To explore elements of social change in foresight, the four scenarios in Arup's 2050 Scenarios report were analyzed through the lens of social cohesion by applying the frameworks of three theorists – Ferdinand Tönnies, Émile Durkheim and Ibn Khaldun. These three frameworks provided a way to explore the scenarios from the perspective of the loss or gain of social cohesion, different types social cohesion, and the degree to which the state of social cohesion in the scenario is indicative of a change trajectory.

Social cohesion broadly correlates to positive outcomes for both individual and communities, including improved health and economic conditions, resilience after emergencies and reduced conflict (1). Arup's report tracks the United Nation's Sustainable Development Goals (SDGs) along an improvement spectrum as key indicators of change in each scenario. Social cohesion is considered a cross-cutting characteristic across SDG goals (2), and as such presents a different and sometimes counter-intuitive perspective.

Incorporating social cohesion into the Arup scenarios provides another way to explore how the significant changes that take place over 30 years impact the social fabric of communities,

and broadens the perspective on society beyond the singular personal story used in the report to bring the scenarios to life.

Each scenario was analyzed based on the combined perspectives of all three theorists:

- Tönnies - Gain or loss of social cohesion
- Durkheim - Types of social cohesion
- Khaldun - Social cohesion as a core driver in cycles of change

Based on this combined understanding of the state and potential of social cohesion, each scenario was then assessed for its plausibility, stability and utility as a foresight tool.

Summary

A green watercolor-style shape representing the Greenotocracy scenario. The vertical axis is labeled 'PLANETARY HEALTH IMPROVES' at the top and 'SOCIETAL CONDITION DECLINES' on the left. The horizontal axis is labeled 'SOCIETAL CONDITION DECLINES' on the left and 'PLANETARY HEALTH IMPROVES' at the top.

SCENARIO SUMMARY

“Greenotocracy describes an improvement in planetary health which has been enabled by severe restrictions on human society: restrictive living conditions, conflict and authoritarian regimes prevail.”

SOCIAL COHESION SUMMARY

The world is on the cusp of change as a result of low social cohesion overall and signals of rising solidarity in opposition to the existing order. The near tyrannical imposition and enforcement of centralized values demonstrates weakening bonds between people and government. Self-imposed isolation and a focus on individual priorities further reinforces fractured relationships and individualized values.

A blue watercolor-style shape representing the Post Anthropocene scenario. The vertical axis is labeled 'PLANETARY HEALTH IMPROVES' at the top and 'SOCIETAL CONDITION IMPROVES' on the right. The horizontal axis is labeled 'SOCIETAL CONDITION IMPROVES' on the right and 'PLANETARY HEALTH IMPROVES' at the top.

SCENARIO SUMMARY

“Post Anthropocene shows how societal conditions and planetary health might exist in a harmonious relationship, fortifying each other for mutual progress and benefit.”

SOCIAL COHESION SUMMARY

The shift toward surveillance-enforced values and the use of AI to disrupt the direct relationship between people and government signal a decline in overall social cohesion in this scenario. Similarly, the emphasis on meeting personal goals over collective goals, and on movement around the globe, reinforces fractionalized and transitory societal relationships.

SCENARIO SUMMARY

“Extinction Express depicts both declining planetary health and societal conditions. It is questionable how much longer humanity can survive.”

SOCIAL COHESION SUMMARY

Pockets of solidarity-based social cohesion among poorer classes and refugees signal that new groups with increasing solidarity based on shared experience are forming, a signal of change. The extreme wealth gap supports both more traditional social cohesion in richer communities, and more pathological social cohesion in poorer communities.

A pink watercolor-style shape representing the Extinction Express scenario. The vertical axis is labeled 'SOCIETAL CONDITION DECLINES' on the left and 'PLANETARY HEALTH DECLINES' at the bottom. The horizontal axis is labeled 'SOCIETAL CONDITION DECLINES' on the left and 'PLANETARY HEALTH DECLINES' at the bottom.

SCENARIO SUMMARY

“Humans, Inc. represents our current trajectory; a world in which societal conditions advance at the cost of planetary health.”

SOCIAL COHESION SUMMARY

The emphasis on preserving more traditional ways of life and the slower pace of mass industrialization make this scenario the most *Gemeinschaft*, and the one that demonstrates the least loss of social cohesion. Rising inequality signals the beginning of a decline cycle, but societies are largely still exhibiting strong action to reinforce social cohesion, and the impacts of strong social cohesion.

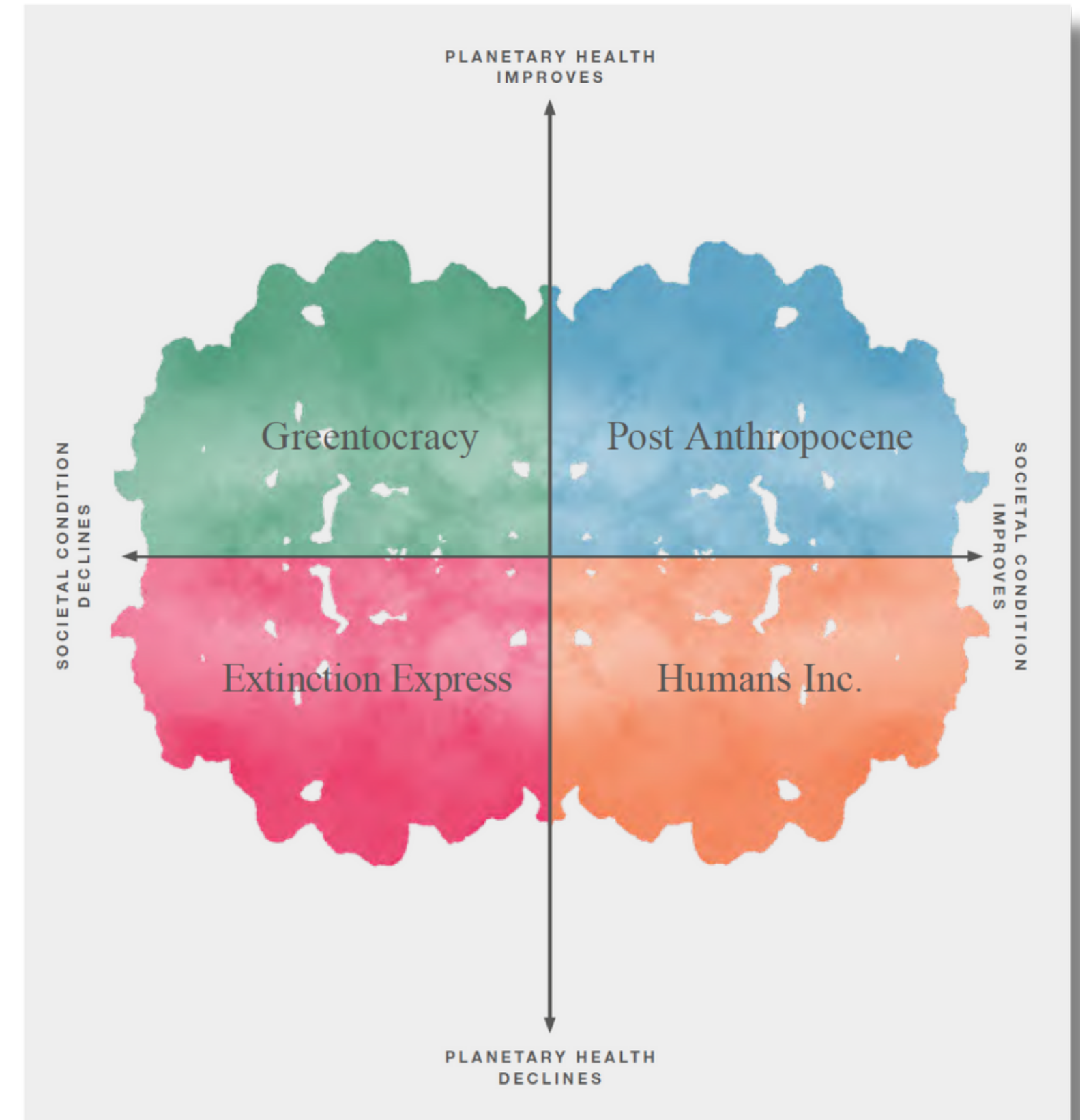
An orange watercolor-style shape representing the Humans Inc. scenario. The vertical axis is labeled 'SOCIETAL CONDITION IMPROVES' on the right and 'PLANETARY HEALTH DECLINES' at the bottom. The horizontal axis is labeled 'SOCIETAL CONDITION IMPROVES' on the right and 'PLANETARY HEALTH DECLINES' at the bottom.

About the report

Released in 2019, the report *2050 Scenarios: Four Plausible Futures* was created by Arup to better understand forces on their own businesses and markets using what they refer to as four “extreme yet plausible” scenarios.

The fundamental conflict that Arup identified is the clash of human systems and planetary systems, where human systems are considered the primary threat. Whether these systems decline or improve are the polarities that form the 2X2 axis shown on this slide and the four scenarios that meet the conditions of each quadrant. The report draws primarily from mega-trends to inform the scenarios. For example, increasing climate change and biodiversity loss on the planetary side, and population growth, urbanization and changing demographics on the human systems side. It also draws from the nine planetary boundaries needed for a stable environment, the United Nations Sustainable Development Goals (SDGs), and Arup’s own Drivers of Change cards.

From these sources, Arup identified 20 critical factors, and then engaged diverse, global experts in workshop settings to use those factors to set the baseline parameters for each scenario.



SDGs AS KEY INDICATORS



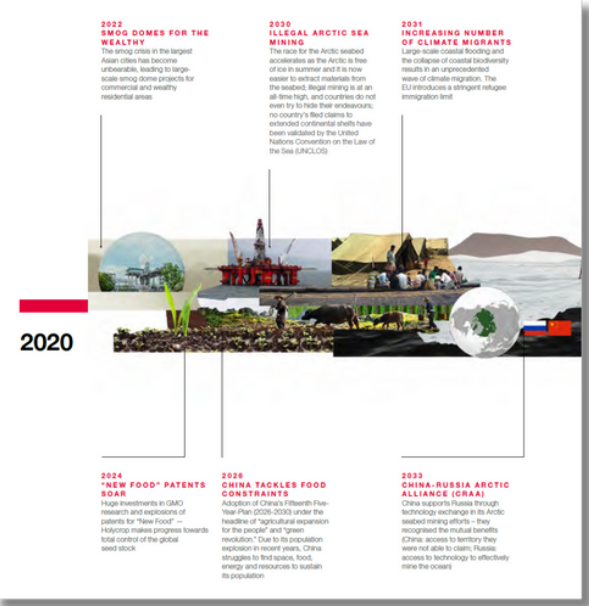
IMAGES OF THE FUTURE



PERSONAL STORIES



BACKCASTED TIMELINES



The scenarios are articulated through a number of methods – illustrated images of the future, back-casted timelines that chart the course to 2050 through major events, and personal stories from diverse parts of the world to bring the scenarios to life.

The impacts of each scenario are charted on an improvement scale for all 17 SDGs. The report also presents six high-level indicators for each scenario - global population, size of wealth gap, percent of temperature increase, level of global cooperation, stability of weather and percent of all global energy that is considered clean energy.

The report treats the scenarios as change environments within which the reader can consider different strategies and trajectories. There are no strategic options identified for any of the scenarios or for specific audiences. While there is no “preferred” scenario, and all are considered extreme in some of their characteristics, a world in which both planetary health and societal conditions improve – the Post Anthropocene scenario – is considered by the authors to be a worthy goal.

Why social cohesion?

Social cohesion is critical to social change because it both contributes to positive societal impacts and is an enabler of change. This characteristic makes it a goal in its own right for development institutions, agencies, cross-sector investment and communities, many of which have integrated social cohesion as a goal and strategy in their work.

Despite this importance, social cohesion remains difficult to define and measure, even when referenced. The Organization for Economic Co-operation and Development (OECD) considers social cohesion as an integrated strategy for poverty reduction by supporting growth with equity embedded in its distribution (3). The United Nations considers social cohesion as core to an inclusive “social contract”, an overarching framework for “preventing conflict, building inclusive societies and sustaining peace through effective democratic governance” (4). Additionally the UN considers social cohesion to be a separate, cross-cutting goal for all of the SDGs, and studies have pointed to its particular support for SDG 1 - No Poverty, SDG 10 - Reduced Inequality, and SDG 16 - Peace, Justice and Strong Institutions.

There is also a strong correlation between social cohesion and the

“Social cohesion refers to the vertical and horizontal relations among members of society and the state that hold society together. Social cohesion is characterised by a set of attitudes and behavioural manifestations that includes trust, an inclusive identity and cooperation for the common good” - Social Cohesion A New Definition and a Proposal for its Measurement in Africa (German Development Institute)

“...social cohesion broadly refers to social bonds, or the ‘glue’ that connects societal members. Societies with higher levels of social cohesion are documented as generally being healthier, more resilient to external shocks and crises, and experiencing higher economic growth” - Social Cohesion, Concept and Measurement (United Nations)

“Social cohesion is a sense of shared purpose, trust and willingness to cooperate among members of a given group, between members of different groups, and between people and the state.” - World Bank Group

“A feeling that members have of belonging, a feeling that members matter to one another and to the group, and a shared faith that members’ needs will be met through their commitment to be together.” - McMillan, 1976 (cited in McMillan & Chavis 1986)

“A cohesive society is characterized by resilient social relations, a positive emotional connectedness between its members and the community and a pronounced focus on the common good. Social relations, in this context, are the horizontal network that exists between individuals and groups within the society. Connectedness refers to the positive ties between individuals and their country and its institutions. A focus on the common good, finally, is reflected in the actions and attitudes of the members of society that demonstrate responsibility for others and for the community as a whole.” - Bertelsmann Stiftung

built environment, which is Arup’s primary focus. The extent to which the built environment supports group level conditions can either help or hinder social cohesion. For example, spaces for personal interaction and community engagement help support connection, and, in the design of a “public square”, provide space for civic engagement. Isolated spaces like apartment buildings with high population density have the opposite effect, enhancing social isolation and loss of norms. (5)

Lastly, theories of social change should be apparent in futures scenarios to ensure that there is a causal pathway about why change happened from the perspective of people. Michaels describes this by suggesting that “shared thoughts about the future ought to be accompanied by an explicit theory about the processes of social change sufficiently detailed so that the futures described can be derived from it.” (6) Incorporating theories of social cohesion into scenario evaluation in foresight work provides an additional social change lens through which to assess whether the state of the world in the scenario is grounded in plausible change, whether it is in a stable state or on the precipice of change, and how it can best be used for strategic decision making.

Three theorists/three frameworks

Tönnies

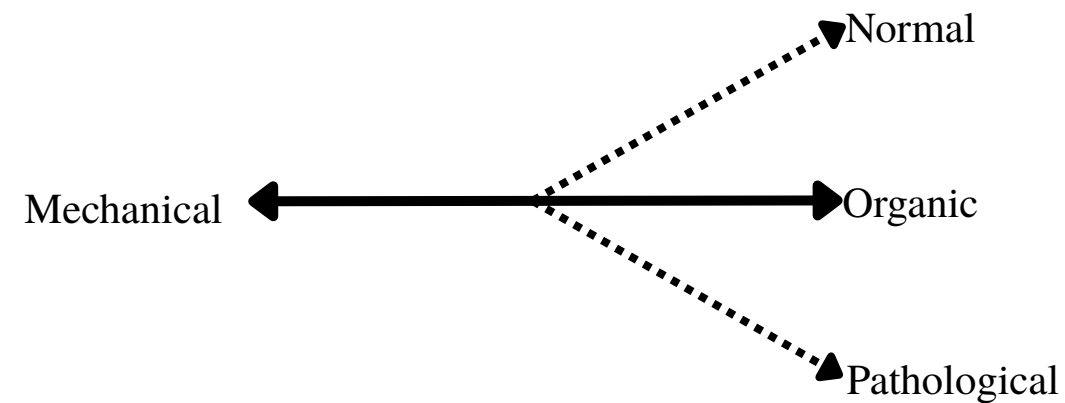
Gain or loss of social cohesion

Gemeinschaft ← → Gesellschaft

Tönnies theorized that “social groups express the collective will of their members” through norms and rules (7). By examining the implications of the changes he witnessed as a result of industrialized capitalism and modernization, he characterized this collective will as shifting from *Gemeinschaft*, where organic community relationships are based on shared values and traditions, to *Gesellschaft*, where relationships are transactional and transitory, and based on self-interest and particular settings. For Tönnies this shift signals a loss of cohesion.

Durkheim

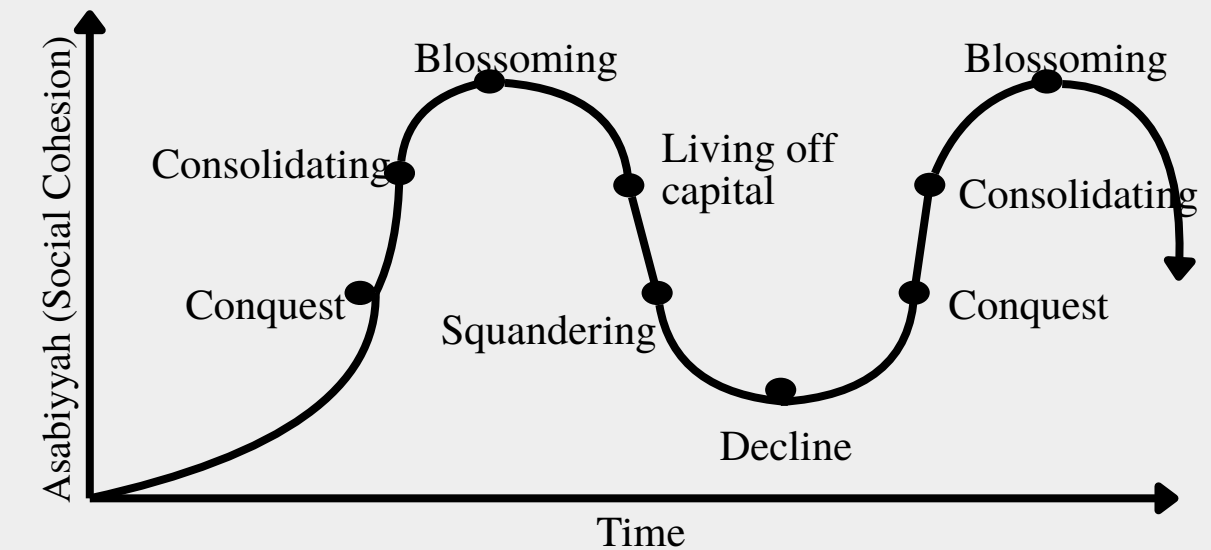
Types of social cohesion



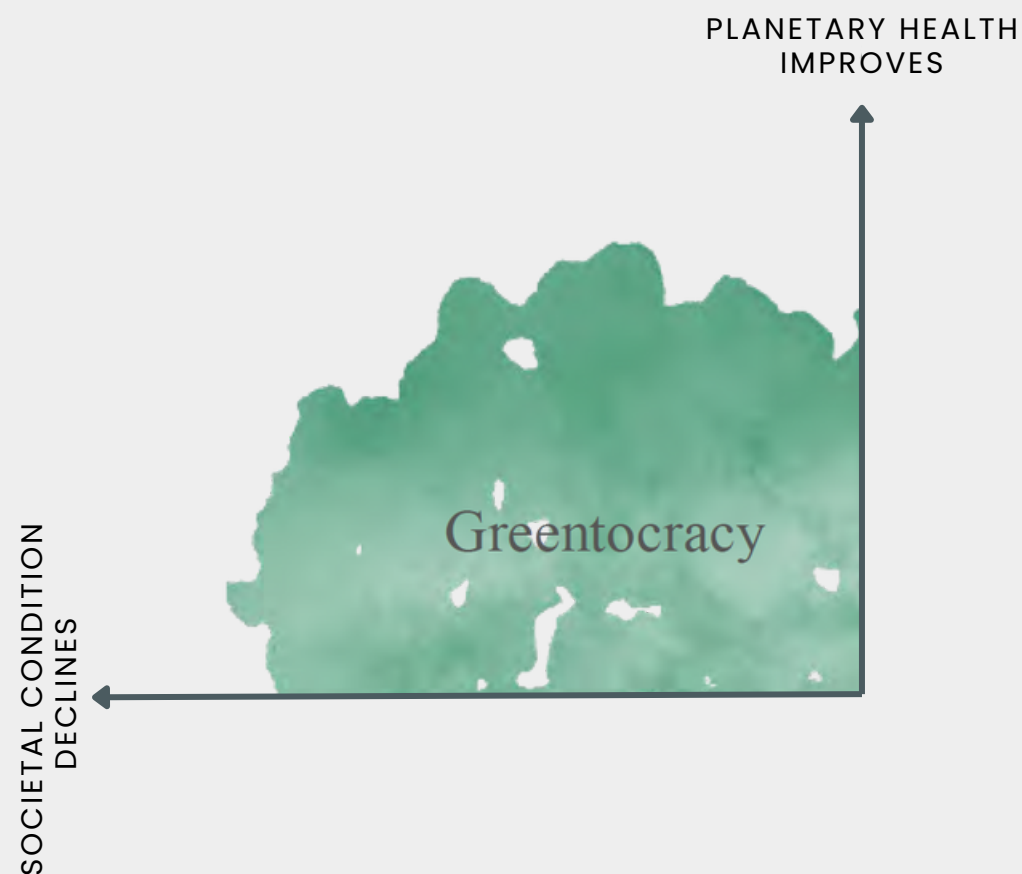
Durkheim explored what he referred to as the moral density of society, which is both the concentration of people and the extent of their interactions, largely as a result of the division of labor and specialization that came with industrialization (8). Rather than a loss of social cohesion, he saw this change as a transformation of it - from *mechanical* (traditional, pre-industrial societies with minimal division of labor, shared values, a strong collective conscience, and more resistant to change) to *organic* (functional interdependence as a result of division of labor in modern societies where individual liberty is a priority, born out of change). He further described the division of labor as either *normal*, where individuals form organic bonds through specialization, or *pathological*, where division of labor is forced and reinforces inequality, social norms that should arise are uncertain, and society is threatened. (9)

Khaldun

Social cohesion as a driver in cycles of change



Khaldun's concept of *Asabiyyah* is the essence of social cohesion -- the solidarity that develops through “group feeling” in which individuals make their own desires subordinate to the group's, giving the group the collective will necessary to conquer others and come into power (10). His theory of social change is cyclical. Groups with strong *Asabiyyah* come into power, but inevitably lose that solidarity over time and give way to new groups with stronger *Asabiyyah*. Factors that contribute to strong *Asabiyyah* include a common mode of living, power and leadership that can reinforce solidarity, and religion. Factors that can weaken *Asabiyyah* include misuse of power and tyranny, exploitation, injustice, and accumulation of too much wealth. The rise and fall of civilization is driven by strengthening and weakening *Asabiyyah* among groups.



SCENARIO SUMMARY

“Greentocracy describes an improvement in planetary health which has been enabled by severe restrictions on human society: restrictive living conditions, conflict and authoritarian regimes prevail.”

SOCIAL COHESION SUMMARY

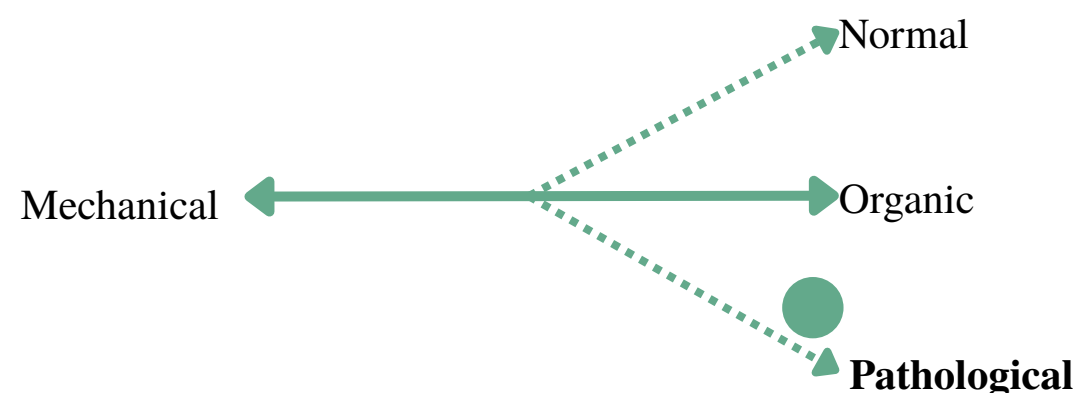
The world in this scenario is on the cusp of change as a result of low social cohesion overall and signals of rising solidarity in opposition to the existing order. The near tyrannical imposition and enforcement of centralized values demonstrates weakening bonds between people and the government. Self-imposed isolation and a focus on individual priorities further reinforces fractured relationships and individualized values.

APPLICATION *Greentocracy*

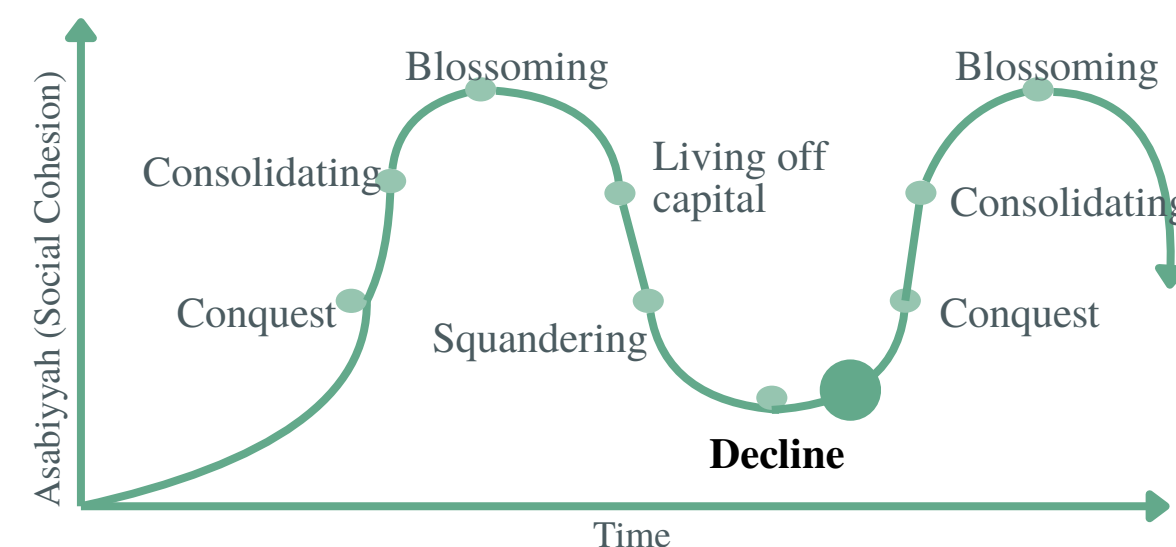
The emphasis in this scenario on forced urbanization and divided societies where centralized values are dictated by the state and not based on relationships is highly *Gesellschaft* in nature, representing a significant loss of social cohesion.



The intense but forced specialization of jobs in a highly regulated economy described in this scenario point to a pathological organic society. The forced division of labor undercuts the formation of new bonds that could have resulted from new specializations where individuals could choose where to apply themselves. This lack of social cohesion is supported by the individual story, where people use technology to further isolate themselves from each other.



The weakening *Asabiyyah* in this scenario is best described by the individual story, where Moussa relates that he once understood the feeling of solidarity that came from protesting, but feels “anxious” now instead. He also notes that people have stopped believing in the “everyday sacrifices” needed to save the planet. The abuse of centralized power needed to maintain such strict social order is another clear sign of weakened *Asabiyyah*, as are continued protests, where the protesters who oppose the current state are described as wearing similar vests in a sign of solidarity. The signals of stronger potential *Asabiyyah* in opposition to the state position this scenario on the cusp of change.



APPLICATION *Greentocracy*

Scenario Plausibility

The timeline that leads to this scenario begins at a point where there is a globally centralized approach to mandating education on specific topics and on specific policies. This would require a near total subordination of social cohesion at the local, national and regional levels in favor of this centralized approach. The scenario narrative references “galvanized global efforts”, but the backcasted timeline provides no events that would lead to that level of centralized control over all aspects of society across poverty gaps and diverse governance structures. Overall, the scenario is missing the causal pathways for social change that enable the world it describes.

Scenario Stability

This scenario is unstable and conditions are likely to change as a result of forced control and growing solidarity in opposition to that control. Because opposition to the current context is becoming more widespread, and people are notably losing interest in self-sacrifice in service of the planet without it being an authentically shared value, the world in this scenario is likely to shift away from planetary health, losing the gains described.

Scenario Utility

Without more attention to social change this scenario will be difficult to work within. The mechanisms leading to control are too opaque to design strategy in relation to them, leaving only protest movements as a possible, but narrow, leverage point for changing the existing context.

1

NO POVERTY

Extreme poverty has increased, but persists in the Global South.

3

GOOD HEALTH AND WELL-BEING

Health care is universal, but very basic. Mental health is declining. Life expectancy is 75 years.

10

REDUCED INEQUALITY

The wealth gap is high and the least developed economies see little growth.

16

PEACE, JUSTICE AND STRONG INSTITUTIONS

35% of governments are democratically elected. Civil liberties are low, press coverage is restricted, and expression must align with local laws.



APPLICATION *Post Anthropocene*

Movement around the globe in this scenario signals that relationships may be transitory and based on individual goals more than shared values. Similarly, the fact that people are motivated to stick to carbon targets by tracking their own points as personal success targets, and by being surveilled, signals a potential loss of shared inter-personal values.

Gemeinschaft  Gesellschaft

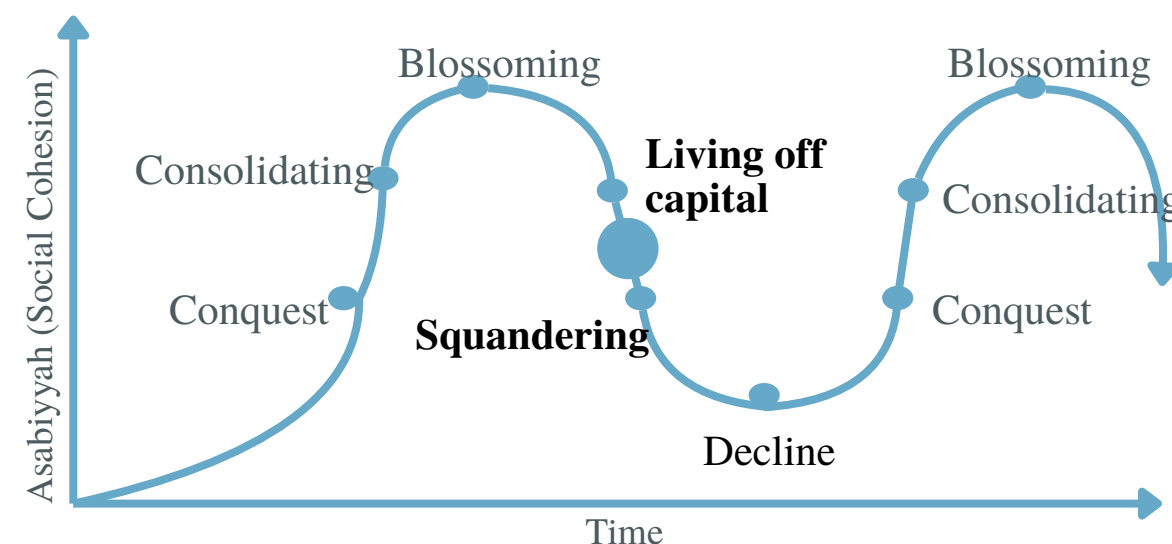
The emphasis on meaningful work and life-long learning reinforces the individualism and support for ongoing specialization of labor in a normal way. At the same time, it is clear that systems are forcing norms of behavior. For example, the reference to shared collective consciousness would undermine the bonds formed in an organic society, as does the extent to which individuals are highly regulated.

Mechanical  Organic

Normal

Pathological

With the hard-won fight to bring human systems in line with planetary goals over, Khaldun's theory would suggest that *Asabiyyah* is beginning to wane. Powerful corporations are using personal data and symbols of societal success to exploit consumers, like the personalized advertisement from the white Rhino. The state is using technology and mass surveillance to ensure compliance with rules and progress on targets. The insistence on broadcasting shared values suggests that they may be less authentically supported, as does the suggestion that some pockets of traditional practices still exist. The ceding of power over policy and enforcement to AI also interrupts the relationship between people and their leaders.



PLANETARY HEALTH
IMPROVES



SOCIETAL CONDITION
IMPROVES

SCENARIO SUMMARY

“Post Anthropocene shows how societal conditions and planetary health might exist in a harmonious relationship, fortifying each other for mutual progress and benefit.”

SOCIAL COHESION SUMMARY

The shift toward surveillance-enforced values and the use of AI to disrupt the direct relationship between people and government signal a decline in overall social cohesion in this scenario. Similarly, the emphasis for people in meeting personal goals over collective goals has the potential to undermine the creation of new bonds and relationships. The same holds for the emphasis on movement around the globe, reinforcing more transitory societies.

APPLICATION *Post Anthropocene*

Scenario Plausibility

To arrive at the beginning point of this scenario the reader has to accept that there is an initial degree of global solidarity in 2021 that only increases, enabling total coordination across governments and widespread, shared measures for social control. The current state of inequity between those making the climate worse and those feeling its effects the most would suggest that starting point is implausible. Countries in the global south are already in solidarity against the north and cooperating more at a regional level regarding climate change. It is hard to imagine a crisis in the global north prompting total global solidarity, as is suggested. There is a further correlation suggested between democratically elected governments and global coordination that assumes a western model will work globally. In non-western parts of the world, there are examples of stronger social cohesion and coordination at multiple levels with non-democratically elected governments.

Scenario Stability

The fracturing of global society, reliance on technology for social control and effective manipulation of individuals by corporations suggests that this scenario is becoming unstable. Including digital minds in the global commons could trigger a wild card context where AI suggests different mechanisms for supporting the planet. This also sets up a cultural clash with the growing communities dedicated to more localized, organic and traditional ways of farming – a shift toward more *Gemeinschaft* societies.

Scenario Utility

Anticipating where change is likely to come from will be critical to using this scenario to plan strategy, however it is difficult to identify where those options are, ultimately making this scenario harder to use.



1

NO POVERTY

Poverty is at an all-time low.

3

GOOD HEALTH AND WELL-BEING

Predictive and precision medicine is affordable and inclusive. The global life expectancy is 79 years.

10

REDUCED INEQUALITY

The wealth gap is low. The most growth in GDP is seen in the middle class, which now holds the largest share. High foreign direct investment (FDI) in the Global South is focused on natural capital.

16

PEACE, JUSTICE AND STRONG INSTITUTIONS

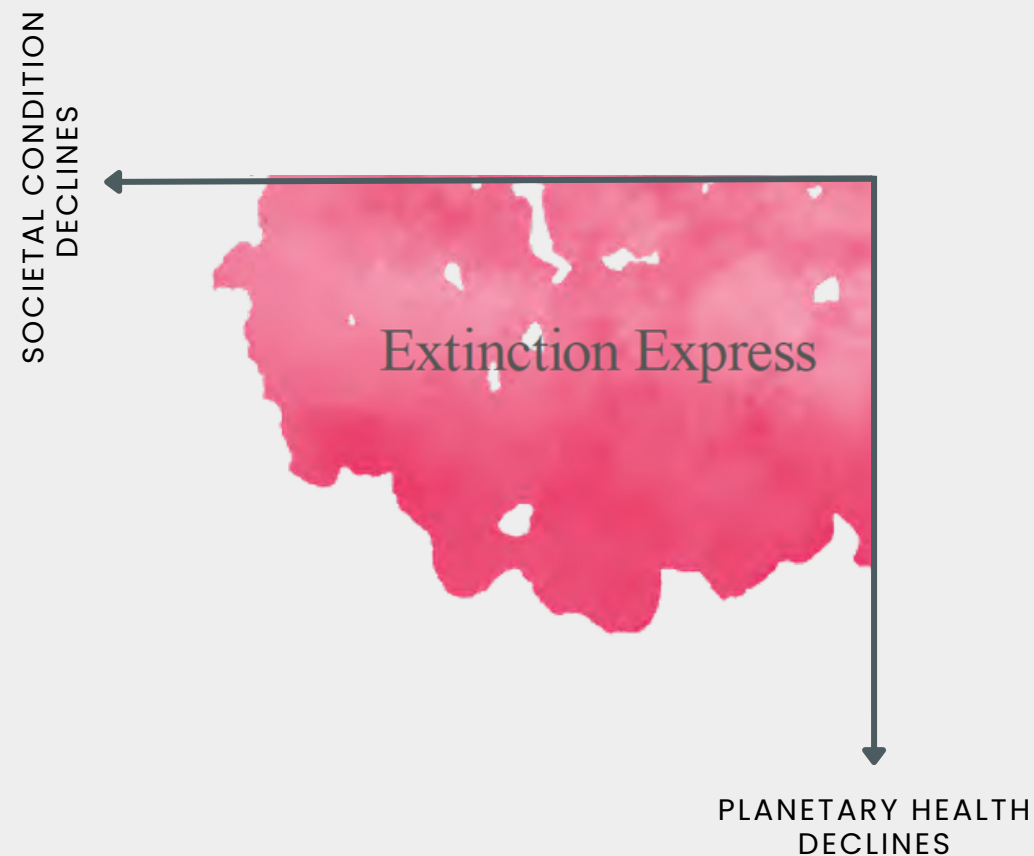
80% of governments are democratically elected. Civil liberties, such as freedom of press, religion, and expression, are at an all-time high. Data collection is high, but anonymised, open, shared, and inclusive with high accountability.

SCENARIO SUMMARY

“Extinction Express depicts both declining planetary health and societal conditions. It is questionable how much longer humanity can survive.”

SOCIAL COHESION SUMMARY

Pockets of solidarity-based social cohesion among poorer classes and refugees signal that new groups with increasing solidarity based on shared experience and crisis are forming, a signal of change. The extreme wealth gap supports both more traditional social cohesion based on homogeneity in richer communities, and more pathological social cohesion in poorer communities who are forced into a new castes system and prescribed division of labor.

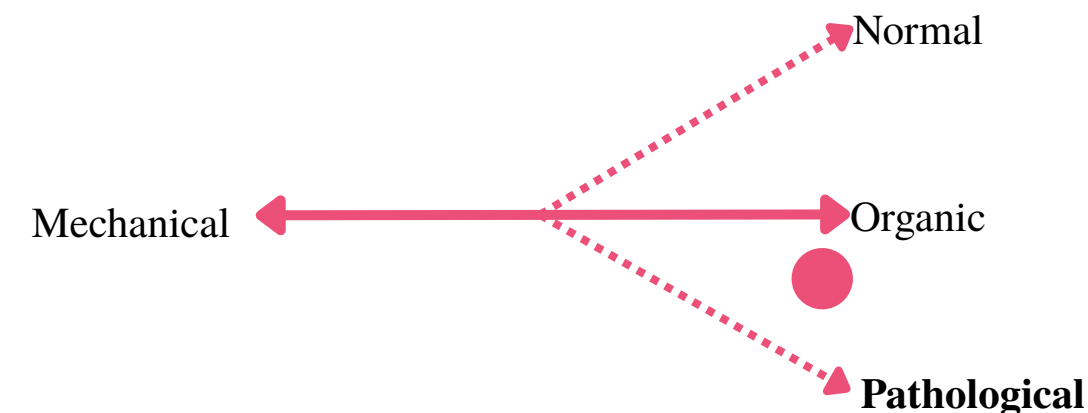


APPLICATION Extinction Express

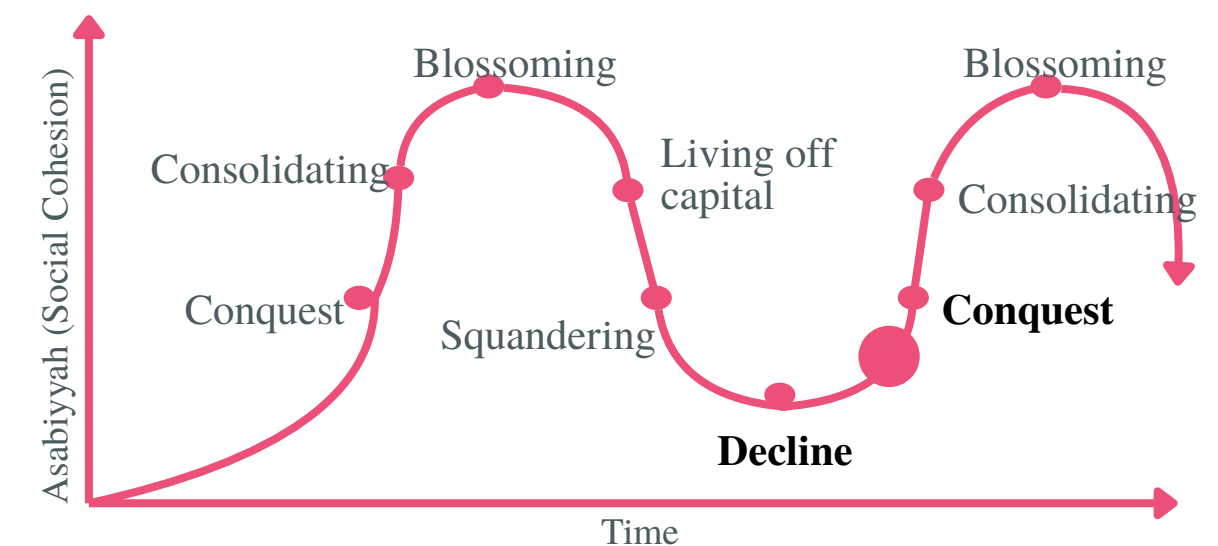
Communities described in this scenario exhibit characteristics of both *Gemeinschaft* and *Gesellschaft*, largely split on socio-economic lines. On the one hand, there is a retreat back to the homogeneity of nationalism and desire to keep “others” out. And, wealthier people live in curated communities that mimic more traditional environments, away from the fractured cities.

Gemeinschaft ← ● → *Gesellschaft*

The way that lower socio-economic classes are partitioned into caste systems with job classes assigned to them reflects a highly pathological division of labor - but only for poorer people. The wealth gap suggests that there may be more normal, organic social cohesion in wealthier communities, but not for society as a whole.



Many aspects of this scenario point to a pre-conquest stage of change. For example, the solidarity in competing national agendas, and the guerilla factions at the local level that are actively working to undermine the current order. In addition, the city-sized camps with climate refugees forced into solidarity in their shared experience, and the extreme wealth gap galvanizing the poor, are further signals of an increase in solidarity by emerging groups. The division in the ways of living and exploitation of people and resources are other signals of weak *Asabiyyah* in the current system.



APPLICATION Extinction Express

Scenario Plausibility

In many ways this scenario is the most plausible and acts as a baseline trajectory of current trends. The rise of nationalist, anti-outsider sentiment is supported by the events that lead up to the scenario's starting point, and supportive of conflicts between nations that are part of the scenario's dynamic. Pathways where the dots are less connected include how the shift in global power to the East relates to rising nationalism or solidarity among climate migrants, and what power governments ultimately have given the extreme role of corporations and the interruption that brings to the relationship between people and their governments.

Scenario Stability

Instability is built into this scenario, which makes it stable as a foresight tool in the sense that what is presented is not likely to shift in a different way than what is laid out.

Scenario Utility

This scenario presents an opportunity-rich environment for a number of possible strategies. There are many different levers for social change and pockets of strong bottom-up social cohesion that make change plausible.

1

NO POVERTY

Living wage jobs are inaccessible to the majority. Major economic loss is experienced regularly due to extreme weather.

3

GOOD HEALTH AND WELL-BEING

Air pollution is the leading cause of death (10 million a year globally). Access to healthcare is low. Life expectancy is 72 years.

10

REDUCED INEQUALITY

Global and domestic wealth gaps are high. Growth has been concentrated in major developed and emerging economies.

16

PEACE, JUSTICE AND STRONG INSTITUTIONS

30% of governments are democratically elected. Civil liberties are very low, press coverage is restricted, and freedom of expression is not allowed.

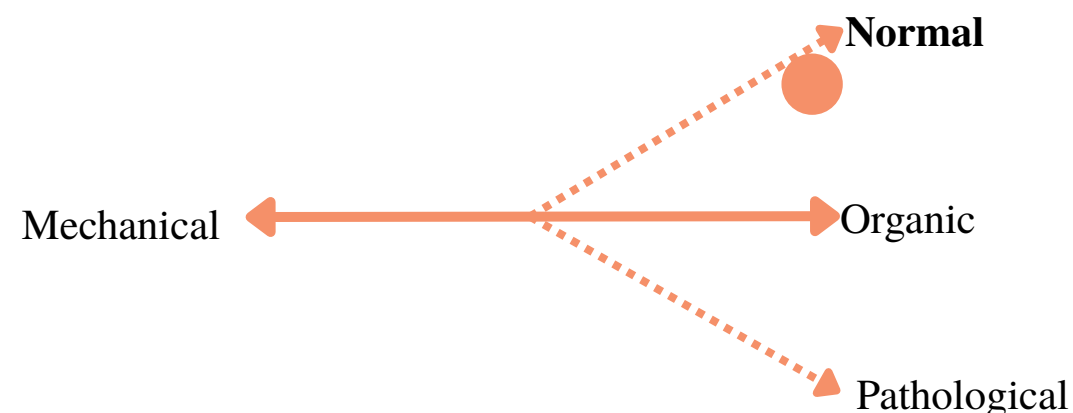


APPLICATION *Humans, Inc.*

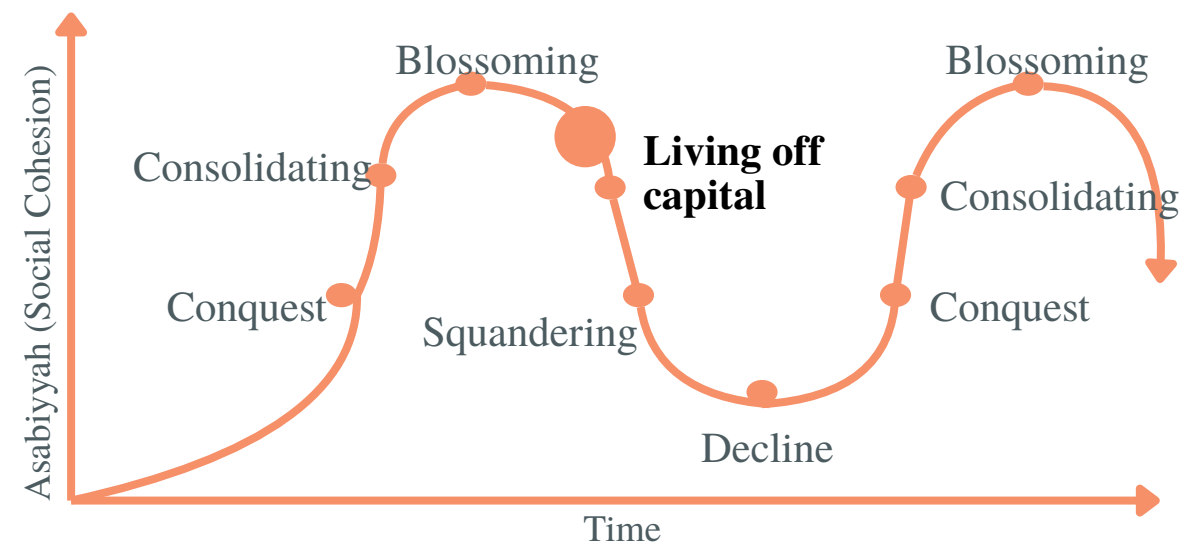
The movement of people to new agricultural regions as a result of climate change signals a desire to preserve or recreate community-based cohesion, even as there are references to a lost past where communities were smaller and more connected. At the same time, the influx of people is changing the tightly connected small town Yuka lives in into a more industrialized city.

Gemeinschaft  Gesellschaft

The strong values around and investment in social well-being helps this scenario to exhibit the most normal and organic cohesion out of all four. Individuals are supported in their interests, and free to make organic connections based on work they choose for themselves as meaningful. While there are some signs of increasing regulation that might limit freedoms, they are still only signs.



The emphasis on governments using surplus wealth to focus on the health of society and on reinforcing positive social change is a signal that this scenario describes living off of the capital from a highpoint. There are cracks starting to show in inequality of both material and economic resources, but societies are still managing. The fact that “social state principles” are a shared value is a signal of leadership using power to positively reinforce solidarity. The same holds for “internationally-synchronized” building codes to better support people as a sign of cooperation around shared values.

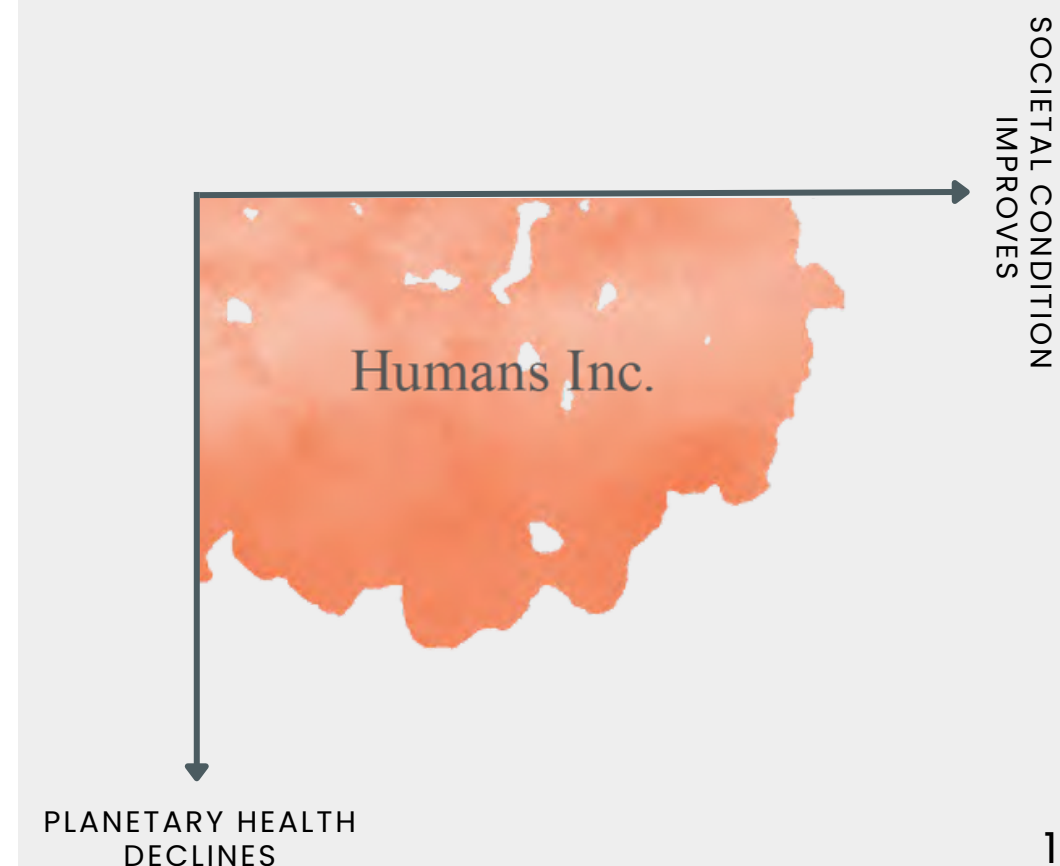


SCENARIO SUMMARY

“Humans, Inc. represents our current trajectory; a world in which societal conditions advance at the cost of planetary health.”

SOCIAL COHESION SUMMARY

The emphasis on preserving more traditional ways of life and the slower pace of mass industrialization make this scenario the most *Gemeinschaft*, and the one that demonstrates the least loss of social cohesion. Rising inequality signals the beginning of a decline cycle, but societies are largely still exhibiting strong action to reinforce social cohesion, and the impacts of strong social cohesion.



APPLICATION *Humans, Inc.*

Scenario Plausibility

The emphasis on a renaissance of social state principles demonstrates strong bonds between people and their governments, but it's unclear how that came about globally. The scenario does not address reasons for the shift aside from surpluses in many nations as a result of decreased energy spending. While that might account for there being more funding available, there's no explanation for why government bonds with people would be stronger, why they would shift to spend surplus funding on societal well-being, nor how this became a prioritized, shared value.

Scenario Stability

This scenario is in a stable state as there are only minimal signals of different types of change.

Scenario Utility

This scenario presents a change environment that would have been interesting to Durkheim in particular, as it could be described as a new wave of movement and recalibration of specialization. This in turn could pave the way for new kinds of social cohesion to occur. With those opportunities there are a spectrum of possibilities for change in different sectors. Overall the stability of the scenario provides a good amount of runway on which to consider different strategies.



1

NO POVERTY

Poverty is at an all-time low. Social state principles experience a renaissance with a new welfare economy. Automation and machine learning enable the implementation of a global universal basic income.

3

GOOD HEALTH AND WELL-BEING

Advances in medicine have increased life expectancy to 76 years and decreased infant mortality, yet extreme weather takes many lives, particularly in the Global South.

10

REDUCED INEQUALITY

The wealth gap has decreased due to effective development strategies, yet persistence of the extractive economy hurts the most marginalised.

16

PEACE, JUSTICE AND STRONG INSTITUTIONS

65% of governments are democratically elected. Civil liberties and freedom of press are by and large upheld.

Reflections

Analyzing the scenarios based on social cohesion provided a different but useful lens on their plausibility, stability and utility for strategic planning.

The greatest planetary gains across scenarios were achieved with a loss of social cohesion, which makes the scenarios vulnerable to change, ultimately undermining those improvements. The lack of causal pathways for social change that would support the centralized action in both Greentocracy and Post Anthropocene suggest that planetary action is only possible with greater control and less organic and authentic societal bonds. These are examples where the social change described has outpaced norms change, and as a result the scenarios are less stable and there is less human agency. These two scenarios also require the assumption that planetary crisis is enough of a push for action, for which there is no precedent. Lastly, strong social cohesion is critical for cooperation between governments, and between individuals and their governments, another factor making these two scenarios less plausible. As a result, it is more difficult to use these scenarios as change environments within which to consider real strategy.

The SDG indicator framework is globally known and widely accepted, which provides an easy entry point for many different types of organizations. However, it also introduces an oversimplification that complicates the scenarios' plausibility. For example, while the authors posit that the Post Anthropocene scenario is in many ways the most desirable, it is Humans, Inc., that demonstrates high and positive social cohesion, both in reinforcing actions and positive impacts. Based on where it is from a cyclical standpoint, it is also the most stable scenario, with more time to shore up social cohesion in order to

continue to support incremental but potentially more sustainable planetary change. However, the SDG and other indicators suggest Humans, Inc. is a mixed bag in comparison to Post Anthropocene's improvement across all measures. If a scenario is on the precipice of change, like Post Anthropocene is, that undermines gains, and the degree to which SDGs may have improved or declined is not as important to consider as identifying potential levers of change.

The social cohesion lens would also be helpful for those using these scenarios to explore implications and strategic options. For example, how could society's bonds and bridges be strengthened in Post-Anthropocene by a reform movement that might counter surveillance-enforced value systems? How could the strong communities in Humans, Inc. be leveraged for action on planetary health? How might the protest movements in Greentocracy help build stronger bridges between governments and their people? How might strong action by new groups with strong *Asabiyyah* turn Extinction Express into a transformation space rather than collapse?

An overarching takeaway for foresight practitioners is that building an assessment of social cohesion into scenario development could help the scenarios feel more plausible, realistic and less extreme, and take them from a "slice of life" moment in time to more dynamic contexts for change. For that, Khaldun's cyclical model of change using social cohesion as a driver of large-scale shifts proved particularly useful.

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Attachments

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