



*Pan-European democracy, social justice and environmental sustainability
For a just, sustainable and happy society*

The Society of Agreement

The "Society of Agreement" is the long-term goal of the CosmoPolitical Cooperative. It is the vision of a just, sustainable and happy society for 2050 and beyond. It is intended for the European Union, but is meant to be extended to the whole world.

This society aims at human well-being. It relies on three pillars, to which all the rest is subordinated: (1) social justice (agreement among humans on the allocation of resources); (2) pan-European democracy (agreement among humans on decisions); and (3) environmental sustainability (agreement between humans and the laws governing the geo-biosphere upon which we depend), with a prospect of maintaining human civilisation indefinitely.

In the Society of Agreement, all citizens live frugally, and all are absolutely sure that their essential needs are met. All citizens enjoy authentic satisfactions and gratifying social relations, which are different from, but of higher quality than, those of 2019.

Division of labour is performed at the largest possible scale, for the sake of efficiently processing limited resources and thereby follow the model of developed, diversified and resilient eco-systems, and to embody solidarity among all humans. Society is strongly regulated, to ensure a fair access to resources, a fair sharing of rights and obligations, and a fair application of rules.

All elements are based upon technologies that exist or are under development in 2019.

This document also contains the "negative mirror" of the Society of Agreement, i.e. the alienating and environmentally harmful elements of our contemporary society of 2019 which will be



relinquished in the Society of Agreement, and that we can dispense of – happily and with relief!
This “negative mirror” is written in **white over grey**.

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1 Social justice: agreement among humans on the allocation of resources

* Link: <https://www.penguin.co.uk/books/179/179241/the-spirit-level/9780241954294.html>

In any society, all humans must be absolutely certain that all their essential needs will be covered, now and in the future, for them and for the generations to come. This aspect of social justice is an essential requirement for a society to be legitimate, and for all of its members to agree on supporting it.

In the Society of Agreement, the world is strongly constrained by the attainment of planetary boundaries. Under these circumstances of overall scarcity, social justice takes a more acute meaning. In order to ensure access of all to the resources necessary to meet human needs, this access is regulated under a strong principle of equality among all humans.

Social justice is in addition, and importantly, a factor of immense improvement in the quality of life of everyone – including of those with the largest social, economic and educational resources. It ensures peaceful, polite and authentic social relationships, on an equal footing, in mutual respect and care.

It relieves all members of society from anxiety and stress

Citizens are no longer subject to permanent anxiety and stress about their immediate survival, nor about their future or that of their children.

Relationships among humans are no longer poisoned by economic dependency, where some depend upon the goodwill of others.

1.1 Agreement on the sharing of resource flows

1.1.1 Sharing the resources that satisfy immediate needs

Human needs are satisfied by goods, which can be material, immaterial and most often a combination of both (e.g. a long-lasting product with attached guarantee and maintenance service).



This chapter describes how humans are being provided access to the goods necessary to satisfy their needs.

The general principle is: Every person lives in dignity from his/her work.

The nature and the intensity of this work is determined by the capacities of the person, and in particular by his/her age (young people don't work during their education time, senior people work with decreasing intensity as their age and physical condition dictate), health and disability status. This work is being remunerated in two ways:

1. it gives the right to access the goods allocated for free by the public authorities;
2. it is compensated in monetary terms (in units of class A) sufficiently to enable the satisfaction of the person's needs, in a fashion respectful of others and of the natural environment, for the fraction of the person's needs that are at his/her discretion, and beyond what is allocated for free.

The supply of (material or immaterial) goods is no longer an end in itself, whose purpose is to generate profit for the few.

Society is no longer split between those who work in well-paid jobs and can pay for high-quality goods and those out of decent work who are provided lower-grade goods for free (or given poverty social assistance) as an alms to keep them quiet and obedient.

(see: Satisfying human needs)

1.1.1.1 Free access to essential goods

The following essential goods are provided for free to all. The resources necessary to produce them are drawn from public budgets fed by fiscal and social contributions, and pooled at the largest possible scale, in order to achieve maximal geographic cohesiveness:

- education from birth until the age of 18 years;
- five years of additional full-time education with a basic bursary and the right to access the other goods allocated for free, to be taken at any time after the age of 18 years;
- health care;
- insurance against harm incurred by oneself and caused to others (liability) in case of accidents;
- connection to networks (water, sanitation, electricity, telecommunications including fixed Internet, railway, cycling roads, electronic payment system) and a first non-tradeable quota of usage per person;
- housing providing essential amenities and comfort, and a quota of surface per inhabitant;
- care upon loss of autonomy (due to accident, handicap, illness or old age);
- (in times of agricultural hardships) a quota per person of cereals, pulses, vegetables, vegetable fats and B12 vitamin, in quantities sufficient to satisfy the essential needs in energy and nutrients.



Essential goods such as housing, education, health care, water, food are no longer the purpose of abuse of dominant positions, where the seller can set his/her price at any high level, because s/he knows that the customer must have access to the good.

1.1.1.1.1 Public budgets

Considering the nature of the goods that are provided from large, public, pooled sources, these public budgets represent a considerable fraction of the transformation throughput of the economy – probably in the range of 70%+.

Public budgets are no longer considered as a burden to society, and taxes as something to get rid of.

The costs of essential goods is no more left to the individual household to bear.

Thus, the duplication of expenses that could be shared among many households or at the scale of society, and the freezing of assets into goods whose essential purpose is an insurance against ill fate, are no longer necessary.

Additionally, the inequalities in access to essential goods, between the few rich that can afford them for their private usage, and the many poor that can't, have disappeared.

1.1.1.1.2 Citizens' control

The free allocation of the essential goods listed must be fair.

The following safeguards are in place:

- the quality requirements placed on all goods being allocated for free are publicly available and are the purpose of a democratic decision with periodic revision;
- the compliance of the goods being delivered with these quality requirements is controlled by an authority independent from the European Union;
- the criteria for allocating goods (and specifically: housing) to persons / households are publicly available and are the purpose of a democratic decision with periodic revision;
- the allocation of each individual good to a person / a household is performed by a fair software.

Private operators no longer discriminate against vulnerable or stigmatised populations when giving access to essential goods, a discrimination for which the burden of proof is almost impossible to satisfy.

(see: Applying rules via a fair software)

1.1.1.2 ***Earned access to renewable resources***

* Link: http://www.ilo.ch/dyn/normlex/en/f?p=1000:62:0::NO:62:P62_LIST_ENTRIE_ID:2453907:NO

Access to renewable resources is obtained by expending the renewable resource generated by humans: work.

Work is where humans transform the world around them for the better (= reducing entropy and



chaos) and for the benefit of others, where they "can have the satisfaction of giving the fullest measure of their skill and attainments and make their greatest contribution to the common well-being". Thereby, they display their full capacity as responsible adults.

Therefore, decent work is a foundational stone of society, and as a consequence, all humans are able to live in dignity from their work, and are employed if willing to do so.

Society is no longer divided between:

- the people enjoying good wages and good working conditions, employed in open-ended contracts and working more than full time, on high-fly career prospects,
- the "precariat" of those hovering between short-term, badly paid contracts, performing dull tasks with no prospects for improvement and
- the long-term unemployed, supported by what is perceived as a public alms, accused of complacency and laziness and subject to permanent harassment by social care services

1.1.1.2.1 Hours of work

In a society in which many operations are automated, where many transactions are pre-defined and where the flows of matter and energy are minimised, the number of hours that humans need to work to fulfil their needs in a manner respectful of fellow humans and of the environment is lower per person than in 2019.

The hours worked by humans are evenly shared among all adults, according to each person's capacities (considering age, health and disability, when applicable). When a set of competencies is not sufficiently present in society to meet the needs of the transformation system, existing workers whose skills are the closest to those required are trained to acquire them.

All working hours are performed at a high level of safety, hygiene and health at work. A given person performs dangerous tasks, or those performed under circumstances that harm the worker's long-term health (e.g. shift work, high or low temperature, noise, dust), only for a limited fraction of his/her career, and is generously compensated for having done so in money and in rights for early reduction of working time at old age.

Society is no longer divided between:

- a few highly-qualified specialists and masters of the rules governing the allocation of resources, performing tasks that are difficult or impossible to automate, and working long hours, and
- a mass of people with less (or less relevant) qualifications, permanently under threat of being replaced by automated machines, working short, discontinued hours.

1.1.1.2.2 Remuneration of work

The monetary income (in currency for class A – renewable resources) is provided in exchange for the work being provided, taking in consideration the capacities of the person. When the person is employed, his/her salary level is defined in a collective agreement agreed at scale of the European Union. Derogations at smaller scale (Member State, region, company) are only valid when more favourable to the worker. When the person is self-employed, his/her income depends upon the economic performance of his/her company.



Monetary income (whatever its source) is subject to strongly progressive income taxation, where every person contributes (even if a minor fraction of his/her income), but where the ratio between the top 1% and the bottom 1% incomes after tax and social contributions is no higher than 3:1.

Remuneration of work is no longer the result of an individual negotiation between an employer and a lonely worker, where very few, non-substitutable skills are paid obscene wages (e.g. star football players, CEOs, traders, bankers, some IT specialists), and the bulk of other, easily substitutable competencies are victims of blackmail by employers and end up with low, stagnating wages.

1.1.1.3 Limited access to finite, reversible, non-renewable resources

Finite, non-renewable resources such as the carbon content of the atmosphere and mineral raw materials are no longer considered as indefinitely available, provided an adequate price is paid.

1.1.1.3.1 Allocation of rights to finite, reversible, non-renewable resources

The allocation of finite, reversible, non-renewable resources to individuals is performed with currency units of class B.

The rules relative to the allocation of these currency units of class B follow two principles:

1. equality among humans. These resources have been provided by our environment and its history for free, and were produced with no human work whatsoever. No human work, merit or talent justifies to obtain more of these resources;
2. prevention from irresponsible behaviour and waste of resources when a person nears a moment when s/he will lose access to these resources (when a child becomes autonomous and leaves his/her parents' household, death).

Every human receives an allocation in currency units of class B that s/he can use to purchase durable goods or to enable transforming firms to invest in equipment or infrastructure. Similarly, all public entities are allocated currency units of class B, proportionally to the population that they manage, for investment.

1.1.1.3.1.1 At birth

Upon his/her birth, a child generates the allocation of a number of currency units of class B (finite, non-renewable resources) to the household of his/her parents. This number is the same for all births, and is inferior to the allocation given to an adult.

The allocation of currency units of class B grows for each child of a household, as the child grows in age, until the age of majority for each child, where the allocation is that of an adult.

1.1.1.3.1.2 At majority age

When a child reaches his/her majority, s/he can elect to remain in the household of his/her parents until the end of his/her studies.

When the child leaves the household of his/her parents (upon majority or at the end of his/her studies), s/he is allocated a number of currency units of class B (finite, non-renewable resources) of an adult, for him/her to manage autonomously. This allocation is taken from that of the household of his/her parents, which is then diminished accordingly – leaving them with what remains (which can even be a net debt if they behaved irresponsibly).



1.1.1.3.1.3 *At old age*

The allocation of an older person in currency units of class B diminishes with the person's physical and mental capacity, at the same rate as the number of hours of work being requested from him/her. When the person reaches a health situation when s/he cannot work any more, that person cannot manage any currency units of class B either. S/he is however still being provided all goods allocated for free, and still receives an income in currency units of class A (renewable resources).

1.1.1.3.2 Recovery of rights to finite, reversible, non-renewable resources

In order to recover currency units of class B after spending them, a person or organisation must either:

- give back durable goods containing chemical elements or mineral construction materials, in a state enabling re-use, repair or recycling. The currency units of class B are credited after this suitability for re-use, repair or recycling has been certified by an independent body.
- expend currency units of class A to the European Union administration whose function is to grow trees or micro-algae for the long-term capture carbon dioxide from the atmosphere (resp. in construction / furniture or in long-lasting plastics). The effectiveness of this capture is permanently and democratically controlled by public scrutiny and third-party expert audits, so as to prevent fraud. Currency units of class B are auctioned by the European Union for currency units of class A. The minimum price in these auctions for a kg of CO₂eq (and the corresponding currency units of class B) is determined by the time and effort needed to capture it. This public auctioning process is the only means whereby currency units of class B can be acquired against currency units of class A.

1.1.1.4 **Access at regulated prices**

1.1.1.4.1 To housing

Buildings for housing are owned by public authorities (European Union or at national/regional/local level), or by private organisations managing a large number of dwellings.

Rents for the usage of the dwelling, beyond the free allocation given to all, are determined by:

- the surface and the volume of the dwelling;
- the surface and the volume of any shared space in the building or the immediate vicinity, and to which the inhabitants have access;
- the equipment provided for exclusive use by the inhabitants of the dwelling or for shared use with the others in the same or neighbouring buildings;
- the maintenance and operating costs of the dwelling and of the building.

The algorithm determining the rent as a function of these parameters is a "fair software".

The rent for usage of the land and of the related amenities provided is paid in addition, namely to the European Union.

The algorithm allocating a dwelling to a given household according to its size and composition is a "fair software". Because each organisation managing housing works on a large number of cases per year, any bias or discrimination can be detected using statistical methods – and subsequently



sanctioned and redressed.

Individual owners of housing for rent can no longer discriminate among their tentative tenants along (real or perceived) ethnicity / gender / sexual orientation / disability.

Landlords can no longer impose any price for their housing, by preying on the fact that housing is an essential good for which there is no substitute.

Public authorities can no longer allocate subsidised housing to their political clientele

1.1.1.4.2 To goods provided by natural monopolies

Networks (e.g. railways, the Internet, the electric and gas grid, water supply, sewers and sanitation) and fixed-cost economic activities (e.g. software development, digital platforms) are natural monopolies: the larger and the more integrated the network, the higher the efficiency and the better the service.

These economic activities are either (1) public or (2) private and submitted to a strong regulation. In both cases, the price for the goods delivered by these natural monopolies is regulated so as to mimic the efficiency of a "pure" market (and to avoid the monopoly from extracting an undue rent from its customers). This price is the marginal cost of the good.

Natural monopolies are no longer owned by unregulated private players, which leverage their position to extort undue rents from their customers (by charging high prices for the goods they sell) and suppliers (by paying low prices for their purchases).

1.1.1.5 **Access at market prices**

* Link: https://en.wikipedia.org/wiki/Price_elasticity_of_demand#Determinants

The income received from the person's work (expressed in currency of class A) and his/her allocation of finite, reversible, non-renewable resources (expressed in currency of class B) can be used to purchase or rent a range of goods at the discretion of the person, at prices set by the market.

Because the essential needs are satisfied by free allocation (and are thus out of this market), and because the satisfaction of these needs can be performed by many competing means (so that the person can dispense from the good being offered on the market without damage if the price is too high), the prices on these markets are elastic and do not experience brutal spikes and oscillations that could deprive the most vulnerable from accessing these goods.

The price of any good is expressed as a combination of currency units of class A (for renewable resources) and of class B (for finite, reversible, non-renewable resources). It also incorporates the cost of "externalities", i.e. of the harm or benefit that their production or their consumption causes to the environment or to humans (in the form of resp. taxes or subsidies).

For all these reasons, the market prices can be considered as reasonably fair and sufficiently predictable to orient consumption wisely.

Consumers and professional customers no longer experience brutal spikes and oscillations in the price of essential goods that deprive the most vulnerable from accessing them.

(see: Measurement and accounting)



1.1.1.5.1 Identifying the most appropriate good

Consumers and professional customers no longer rely on deceiving advertising to make their purchasing choices.

Consumers no longer rely on the toxic mixture of brand (which gives a premium to those having spent most on advertising, to the detriment of quality of design and of production process) and price (which puts pressure to reduce wages, and to deteriorate working conditions and the environmental impact of processes) to determine their choice.

Salespersons are no longer in a situation of conflict of interests between advising the customer on (1) what is better for him/her or (2) what generates the highest margin for their business.

1.1.1.5.1.1 *On-line catalogue*

All tangible and intangible goods are required to be registered in a free, publicly searchable online catalogue, which describes their technical characteristics, certified performance levels, the certified social performance of the processing chain that generated them, and their price in class A and B currency units – which reflects the environmental performance of its processing chain.

This catalogue provides no other content than information on products.

When a person looks for a product, s/he searches this on-line catalogue, using search criteria adapted to each category of good and then per good. The search algorithm is a "fair software". The ranking of answers follows the preferences of the user, according to the features or performance criteria that matter to him/her, and is random among products having the same performance level.

1.1.1.5.1.2 *Independent advice*

Organisations independent from entities providing goods, such as consumer associations, provide an advice for choosing among the products displayed in the on-line catalogue. This advice is a paying service for a fixed non-refundable fee, which ensures its financial sustainability and independence from producers.

The advice can be performed on-line or in urban outlets where the various products are displayed for trial or direct experience. In each case, the purchasing transaction is performed on-line, independently from the advice service.

1.1.1.5.2 Rental

Rental or leasing is the dominant means to access long-lasting goods, including durable goods that a given household only uses for a short period of time (e.g. infant and children clothes, school books, removal lorry). These goods are owned by the rental company, which has the technical capacity to maintain them properly and preventively (before any failure has occurred).

In order for a person to rent a durable good, s/he must deposit the amount of currency units of class B for the finite, reversible, non-renewable resources contained in the durable good. S/he is credited back with these currency units of class B once the item is returned in good condition to the rental company.

Automated self-tests and post-use inspection using image processing (with potential human intervention for costly items) is performed by a "fair software" upon the return of the rented product.

These tests and inspections ensure that every person renting an object is liable for any damage



caused to it, and that the object can indeed be further used, repaired or fed into eternal recycling. The successful performance of this test triggers the redeeming the currency units of class B after use.

Rental or leasing is no longer a marginal business model for occasional use.

(see: Transforming matter)

1.1.1.5.3 Purchase

Purchase is the only means to access consumable goods (e.g. food, hygiene products, writing paper). It is the privileged means to access personalised goods (garments or bicycles made to measure).

Purchase is no longer the almost exclusive means to access goods, including goods of very rare usage (e.g. electric drills).

Goods are no longer designed to be cheap upon purchase, with the prospect of them being out of order in short time, with no possibility for repair or maintenance, and thus of being thrown away, with all embedded resources irreversibly wasted.

1.1.2 Investing to satisfy future needs

Investment is the creation of the tools and the build-up of capital of all nature (infrastructure, machines, prototypes of new products, processes or business models, software, data, laws, regulations, procedures, standards) with which to perform the transformations that satisfy human needs, with a higher efficiency in the usage of resources of all kinds (energy, raw materials, human working time...).

An investment thus diverts present resources away from the normal flow satisfying immediate human needs, for the promise of satisfying them better or more efficiently in the future.

1.1.2.1 Remunerating investment

Investment immobilises both renewable resources (human work and competencies, energy) and finite, reversible, non-renewable resources (mineral raw materials), i.e. respectively currency units of class A and of class B for a given period of time, before it operates and returns (and beyond) the resources that it diverted from consumption.

The fact for a person to divert his/her resources from immediate consumption, and for the sake of improving the efficiency of the transformation system in the future, deserves being rewarded as a contribution to the common good.

1.1.2.1.1 Investment in renewable resources

The currency units of class A invested in the project are paid back with an interest corresponding to the improvement in the efficiency in the usage of renewable resource flows. The payback in currency units of class A will in general relatively high.

1.1.2.1.2 Investment in finite, revertible, non-renewable resources

The currency units of class B invested in the project are often immobilised indefinitely (and never paid back), because the finite, non-renewable resources are re-used from one equipment arriving at end of life, in order to pay for the next generation of equipment. The only circumstance in which



currency units of class B can be paid back to investors is when the investment generates savings to the immobilisation of finite, reversible and non-renewable resources. The general rule however is that the payback in currency units of class B in an investment will be negative (corresponding to the irreversible losses of finite non-renewable resources during the lifetime of the equipment), or at best moderately positive.

Therefore, in order for an investment project that immobilises large amounts of finite, reversible, non-renewable resources (expressed in currency units of class B) to attract investors, it will need to provide large returns in currency units of class A to compensate. This makes ecological sense.

Finite, non-renewable resources can no longer be indefinitely added to the existing stock of infrastructures and equipment, with no recovery of the embedded resources.

1.1.2.1.3 Investment in innovative activities

The economic benefits of a patent protecting an innovation are not restricted to the inventor. They are shared with his/her predecessors that have contributed via their own trials and errors to the invention, and deserve also being remunerated for their efforts (even if these efforts failed).

Licensing of patents is defined under fair contracts defined by a mandatory, pre-determined template.

Patents are no more void tools of legal deterrence against competitors, with no inventive content, or no description of how the function is technically performed.

Patent law is no longer a cut-throat competition to be the first past the post, with the hope of being the only and single "winner that takes all".

Licensing agreements are no longer an instrument for the powerful to extract value from the weak, and to steal them from the fruit of their effort.

1.1.2.2 *Personal initiative of investment projects*

Every adult citizen is entitled upon his/her majority to a one-shot investment allocation in currency units of type A (renewable resources) representing several months of qualified work. This allocation can be used in two ways:

- either it is invested in a fund (with or without technical risk), whose assets are managed by a professional team selecting projects initiated by others;
- or it is used by the person to engage in his/her personal investment project.

In this case, the project plan must be validated by a multi-stakeholder commission including people ready to contribute their personal resources to it, in order to: (1) make sure that it is used for productive investment (not for consumption) and (2) check the realism of the project and its compatibility with regulations and policies (as it is the case for larger projects).

The capacity to initiate innovative activities is no longer reserved to those whose "friends and family" are rich enough to provide them with the seed capital needed to explore the technical and commercial feasibility of their project, and to set up the first proof of concept.

1.1.2.3 *Matching savings with investment projects*

* Link: <http://tuvalu.santafe.edu/~wbarthur/Papers/Arthur-HollandStockMarket.pdf>



The capacity to invest wisely is unevenly distributed in society. Public authorities, some companies and a limited number of private people have a capacity to invest wisely that is higher than their savings, and many others are left with unused resources (their savings) when they have satisfied their consumption needs, and have no idea of how to use these savings. It would be a loss for society if those with limited capacity to invest wisely had no other choice than immediate consumption, and those with ideas and capacity to invest were left only with their personal savings, their accumulated profit or their immediate fiscal resources to implement their investment projects.

A financial system exists (1) to pool the savings of the many, (2) to funnel them towards the valuable investment projects of public authorities or of innovative private persons, and (3) to enable those who have allocated their savings to an investment pool (1) to be rewarded for having thus contributed to the common good rather than having allocated their resources to immediate consumption, and (2) to recover their funds before the end of the underlying investment projects (which can last for decades).

Shares of these investment pools are traded on slow, boring and very tightly regulated markets, where fluctuations are deliberately damped (see link to article W.B. Arthur), and where only explicit insurance contracts (not options) are allowed to be protected against pre-determined risks.

Financial markets are no longer dangerous casinos where:

- prices oscillate endlessly at a high speed totally unrelated to any underlying phenomenon having an influence on the economic value of assets;
- the volumes of trading on assets and derivatives (e.g. options) are orders of magnitude larger than the volume of trading in the productive economy, and thus create a permanent systemic risk to the economy, with which markets blackmail society into submission to their requirements of ultra-short-term liquidity;
- those having the right connections and the fast decision-making algorithms strip ordinary investors from their assets.

1.1.2.4 *Selecting investment projects*

Investing diverts present resources away from the normal flow satisfying human needs (potentially in large quantities), for the promise of satisfying them better or more efficiently in the future. These diverted resources must thus be used wisely and responsibly, and for the common good.

This is why:

- a set of policy-related criteria is democratically established (and periodically revised) to select investment projects, regarding specifically their environmental efficiency and impact, and their social effect on the distribution of goods between humans;
- each investment project is checked against these criteria by an independent board made of potentially impacted stakeholders or of their representatives (e.g. for future generations), with a possibility to appeal the decision taken.

Investment decisions are no longer taken on the sole criterion of short-term profit, with no consideration for social, societal or environmental effects.



1.1.2.4.1 Projects with technical risk

When technical risk is involved, there is a possibility that, after all resources planned for the project have been spent, the project nevertheless fails. This stands also when commercial risk is involved, e.g. for a new, untested product.

For these investments, a large, public fund pools the risk and the benefits at the scale of the whole society. It collects all savings that the public wishes to allocate to these projects. The management of this large fund is split between small teams that are chosen after a call for tenders, and are remunerated as highly qualified employees. These management teams select the projects to which resources from their share of the fund will be allocated. The size of the fund that they manage (and the very fact of managing any funds) depends upon their performance – which incentivises them to allocate the funds that they manage wisely.

1.1.2.4.2 Projects without technical risk

* Link: https://en.wikipedia.org/wiki/Project_finance

When no technical risk is involved, the diversion of resources away from the normal flow satisfying human needs is only temporary. Energy, raw materials, human working time are spent to build the tool, and then the tool operates and generates savings in resources that pay back the previous expenses, and beyond.

In these cases, the risk lies in the execution: will the project be finished on time and within the planned resource budget? Providing resources to such projects is the purpose of a well-established branch of finance called "project finance", or of standard lending by banks.

1.1.2.4.3 Supporting economic and social development

A substantial fraction of total investment (>20%) is directed towards lesser developed regions within the European Union and in external countries.

Democratic procedures in these regions and countries ensure that the local population participates in the initiative, the amendment and the ranking in priority order of externally-funded investment projects. Technical support is provided in this process, to provide the local population with the relevant information on the alternative solutions being investigated.

In order to mitigate corruption risks in their management, a condition for granting externally-funded investment is that civil servants in the destination regions and countries rotate frequently between regions and countries.

In the lesser developed countries where the fertility rate is above the renewal of generations, this investment focuses on the emancipation of women.

1.1.3 Sharing costs

1.1.3.1 *Costs of the common infrastructure*

Society relies upon a very rich and deep substrate of infrastructures, which has been capitalised by natural phenomena and by humans in the past: geological and biological resources, knowledge, institutions, laws and regulations, processes, trade relations, reputation, competencies, buildings, machinery, software...

Most of these infrastructures are common goods: their benefit cannot be restricted to those who



paid for them. This justifies that their construction and maintenance be paid for by mandatory payment: taxes.

Tax income is made of:

- a strongly progressive income tax of natural persons, at the same rate for all natures of income (salary or pension, dividends, capital gains);
- a strongly progressive tax on inheritance;
- a tax on the profit of companies (at a lower rate) and an additional tax on the dividends distributed to shareholders, both based upon the company's consolidated world-wide operations, shared between taxing jurisdictions as per their physical and digital presence;
- progressive taxes on externalities caused by goods, upon purchase of that good;
- progressive fines and penalties on private persons.

"Progressive tax" means that people with a higher income pay more than those with a lower one.

Individuals are no longer obliged to pay from their private income for essential goods such as education or health care.

Taxes are no longer concentrated on those who can't escape them (workers and consumers), while capital owners and corporations evade any fiscal or social contribution.

Wealth is no longer inherited from one generation to the next. Social classes and inequalities are no longer entrenched in family lineages.

(see: Accumulation of assets)

1.1.3.2 Taxes on negative externalities

Taxes representing externalities should incentivise all citizens equally to reduce harm caused to others. For the incentive to be equal for all, the tax must also be felt equally.

In order to achieve this, taxes compensating for externalities, when expressed in currency of class A, grow more than proportionally than net income (e.g. the tax for a person with low income may be 1 currency unit, and 10 currency units for a person with a 4-times higher income).

Taxes on negative externalities (e.g. on carbon emissions) are no longer something that only the rich can afford. Conversely, the rich can no longer be in a position of causing harm unilaterally to others.

1.1.3.3 Sanctions for breaching rules

Rules are made to be complied with. When however they are breached, a sanction may need to be applied – which is also an incentive for compliance.

For the incentive to be equal for all, the sanction must also be felt equally. This is the case for prison sentences – and it needs to be the same for monetary fines.

In order to achieve this, monetary fines grow more than proportionally than net income (e.g. the sanction to a person with low income may be 1% of net income, and 2.5% for a person with a higher income).



Fines and sanctions for breaching the rules are no longer something that only the rich can afford. Conversely, the rich can no longer be above the law by simply paying a fine that represents little for them.

1.1.4 Sharing risks

Most risks are shared by having persons and organisations subscribe a mandatory insurance contract, the terms of which are defined by a mandatory template. These contracts leave a part of the risk to be borne by the person / the organisation, in order to incentivise careful behaviour.

Insurance organisations operate at the scale of the European Union, so as to spread their risks across the broadest geographical surface. They operate under a deliberate and legally mandated "veil of ignorance": the information that they are allowed to gather and use over their current and potential customers is restricted, in order to force the pooling of risks across society.

The weak and the vulnerable are no longer left with no or poor insurance coverage.

Insurance companies are no longer allowed to cream the market for the most profitable customers (= the rich, young and healthy), to which low prices are proposed to cover a low risk, while the poor, the old and the sick are left among themselves and pay high premiums for a low service related to their high intrinsic risk.

1.2 Agreement on sharing access to the existing stock of capital

The existing stock of capital is the result of the accumulation of value-creating processes performed by natural phenomena or by humans in the past, and which can generate amenities for humans today and in the future. It consists of:

- land;
- natural capital;
- cultural capital;
- institutional capital; and
- technical capital.

1.2.1 Access to land

* Link: https://en.wikipedia.org/wiki/Spectrum_management

Land is owned by the European Union. The allocation of land is between (1) built areas (for housing or commercial / industrial / transport use) and (2) agricultural areas is decided by the EU, and can only evolve in one direction: the conversion of built areas into agricultural areas. Building in an existing agricultural lot of land is only allowed after an equivalent or larger lot of built area has been converted into a productive agricultural area.

The usage of land is reversibly conceded to private users for a specific purpose, and under controlled conditions, following the model currently existing for the radio spectrum.

This concession is awarded following a call for tenders setting the purpose for which the piece of



land must be used, the obligations of the concession recipient and the means for the EU to control the compliance with these obligations. A concession is provided for an indefinite period of time, but is periodically reviewed for compliance. It is allocated for a rental fee, the amount of which depends upon the infrastructure made available by public authorities in the vicinity. A concession on land may be neither traded nor transferred nor inherited. When a concession ends for any reason (non-compliance with obligations, death, resignation), any fixed assets on the piece of land are included in the following call for tender, and are priced separately by the tenderers. The successful tenderer must pay the previous owner for these fixed assets, before s/he gains access to the land.

Land is no longer a private good, where the owner:

- can deteriorate the soil irreversibly with no accountability to society;
- can monopolise the access to essential resources (e.g. agricultural land, water) and exclude persons from using them productively;
- captures the value of any public investment (e.g. infrastructure, environmental remediation) performed in the vicinity;
- captures an arbitrary share of the value of any private economic activity performed on it.

Land is no longer an asset class freezing capital that should be used to transform the world.

1.2.1.1 Land for housing

(see: To housing)

1.2.1.2 Land for commercial / industrial use

Commercial and industrial buildings are owned by public authorities (European Union or at national/regional/local level), or by private organisations managing a large number of buildings.

Rents for the usage of a lot in the building are determined by:

- the surface and the volume of the lot;
- the surface and the volume of any shared space in the building or the immediate vicinity, and to which the users have access;
- the equipment provided for exclusive use by the users of the lot or for shared use with the others in the same or neighbouring buildings;
- the maintenance and operating costs of the lot and of the building.

The algorithm determining the rent as a function of these parameters is a "fair software". The rent for usage of the land and of the related amenities provided is paid in addition, namely to the EU.

The allocation of a commercial or industrial lot to a given company is performed by a transparent multi-stakeholder commission. This allocation is based upon the viability and public benefits of the project to be developed. A non-confidential summary of all projects received and some key evaluation data are made public, as well as the evaluation made by the commission on each project. The decision can be appealed.



1.2.1.3 Land for agricultural use

The allocation of an agricultural land lot to a given farmer is performed by a transparent multi-stakeholder commission. This allocation is based upon the viability and public benefits of the project to be developed on this lot. All application files received from all candidates are made public, as well as the justified evaluation made on each element of each file by the commission and its final evaluation and decision. This decision can be appealed.

1.2.2 Access to natural capital

Access to natural capital (finite, non-renewable resources, valuable natural environments) is no longer the private monopoly of some wealthy individuals or corporations.

1.2.2.1 Public goods

Natural "public goods" are those the access to which cannot be restricted, such as the climate or air.

1.2.2.2 Non-renewable, reversible resources

Access to non-renewable, reversible natural resources is regulated with the currency units of class B.

Organisations receive currency units of class B as part of their capital endowment to acquire equipment or infrastructure. In case the currency units of class B differ between economic zones, importers of material goods into an economic zone (such as the European Union) need to acquire currency units of class B from exporters (this process is a form of Border Adjustment Measures). Thereby, no economic zone can be a net importer of finite, reversible, non-renewable resources.

1.2.2.3 High-value natural environments

When a piece of land surface with a high natural value (e.g. forest, river or lake bank, seaside) has been allocated to a given person or organisation, this person or organisation has the duty to ensure access to this land surface to the general public. This access can be limited in time and in number of people (for the sake of compatibility with the regeneration capacities of the local biosphere). Its specific costs (e.g. surveillance, waste management) can be compensated for. When the number of visitors must be restricted, it is performed with a quota, and by a random allocation of entry tickets among those having applied.

1.2.3 Access to cultural capital

1.2.3.1 Access to works of plastic art and architecture

When a work of plastic art or architecture with a high cultural value is owned by a given person or organisation, this person or organisation has the duty to ensure access to this work of art to the general public. This access can be granted by lending the work of art permanently to a public museum or by displaying it in a private space open to the public. This display in a private space may be limited in time and in number of people (for the sake of compatibility with the long-term preservation of the work of art and for ensuring private enjoyment). Its specific costs (e.g. surveillance, waste management) can be compensated for. When the number of visitors must be restricted, this is performed with a quota, and by a random allocation of entry tickets among those having applied.



Access to works of plastic art or architecture with a high cultural value is no longer the private monopoly of some wealthy individuals or corporations.

1.2.3.2 Access to works of literature and music

Works of literature and music are protected by author's rights. These rights last for a period of time no shorter than 20 years after the publication of the work, and end at the death of the author (or of the last author in case of collective work).

Cinema and video works are protected by author's rights, which are often attached to the producing company. In this latter case, author's rights last 20 years after publication of the work.

Works of literature and music are no longer protected after the death of the author, so that his/her heirs no longer enjoy undue rents from a creativity that they have no part in.

Works in cinema and video produced at an industrial scale by corporations are no longer protected at the same level as the creative work of individuals.

1.2.4 Access to institutional capital

* Link: <https://creativecommons.org/>

Reference designs for institutional arrangements ensuring reliability, robustness, fairness and internal democracy are published and available to all under open licences (such as Creative Commons). This applies to: statutes for companies and for advocacy organisations, Quality Assurance systems, internal processes in organisations, and many other institutional arrangements.

Statutes for companies and for advocacy organisations, Quality Assurance systems, internal processes in organisations, and other institutional arrangements are no longer re-invented at every new case, for the sole profit of lawyers and consultants.

1.2.5 Access to technical capital

Reference designs for technical transformation processes are published and available to all under open licences (such as Creative Commons), and describe the state of the art to achieve the highest efficiency in the usage of resources. This applies to transformation processes for information, energy, matter. non-human living beings, humans and society.

The reference designs can include patented innovations, which are flagged accordingly with access to the relevant licence contract. In this case, alternative, non-patented solutions are provided with information on the resulting performance loss.

Technical transformation processes for information, energy, matter. non-human living beings, humans and society are no longer closed "trade secrets" kept under the control of the insiders. Potential new entrants into an economic activity are no longer deterred by not knowing its basic features.

1.2.6 Accumulation of assets

Assets can be accumulated freely during one's lifetime, with no specific taxation.

They are however very strongly taxed upon any form of transfer, be it by gift, sale or upon death of



the owner (inheritance tax). The ratio between the top 1% and bottom 1% of inherited assets after tax is below 2:1. The purpose of this inheritance taxation is to restore equality in opportunities at each generation.

Assets are no longer inherited from one generation to the next.

It is no longer necessary to accumulate and transmit private assets to secure a decent living for one's children.

2 Pan-European democracy: agreement among humans on decisions and on rules

Agreement between people that are different in all aspects of their lives (social position, age, beliefs, preferences...) is the main problem of human societies, in public institutions as well as in private organisations.

An agreement only makes sense when it is considered by all parties as legitimate – or at least when there is a general consensus in society that the process leading to it is indeed legitimate.

Agreement among humans is supported by a form of moral self-discipline by all members of society (and by law), so that they follow the processes leading to agreement, and fulfil their commitments once the agreement is reached.

Agreement is based upon the principles of democracy and social justice. Explicit procedures ensure that all values and interests have equally been considered, but also that timely decisions are taken, and implemented – even against the opposition of some (when necessary). This entails that democracy is exerted at the largest scale possible, that of the European Union, so as to overcome the resistance of powerful minorities.

Decisions are no longer paralysed by endless conflicts between seemingly irreconcilable opposing parties, by veto rights, or by disagreements on the very facts upon which to base decisions.

Individuals or groups no longer challenge the very legitimacy of rules, because they consider (often righteously) that they were not given a chance to shape them, or that the rules are to the exclusive benefit of a minority social class.

Individuals or groups no longer evade their public duties (e.g. fiscal or social contributions) or their private ones (e.g. in contracts).

2.1 Agreement on facts

2.1.1 Permanent sources of information

The following sources of information are available to all for free:

- public data and statistics;
- non-personal, machine- and sensor-generated data;
- scientific publications and data;
- technical standards.



Information feeds from press agencies are available to all for a small subscription fee.

Data is no longer the property of private organisations or individuals, which extract rents from those wanting to use it.

Scientific publications are no more a lucrative oligopolistic business.

Standardisation organisations operate no more under the fallacy that they serve industrial interests only, and are no more remunerated by selling their standards at prices prohibitive for citizens and SMEs.

(see: Non-personal, machine-generated data)

2.1.2 Information from active search

When the existing data is insufficient, scientists and investigative journalists actively search information: they generate it via bespoke instruments or surveys, or acquire it via long, in-depth enquiries.

Investigative journalism and whistle-blowing are protected by law.

It is allowable for some research projects to be constituted of data generation only, for other scientists to exploit and interpret.

Information on the private life of individuals cannot be made public, unless there is a clear public governance interest (e.g. conflicts of interest).

"People" press preying on the disclosure of the private life of individuals has disappeared.

Investigative journalists and whistle-blowers are no longer prosecuted.

2.1.3 Laws of nature, humankind and society

The discovery of laws of nature, human behaviour and society, which express how phenomena of all sorts can be predicted, is the purpose of scientific research activity.

All scientific work is reproducible, cumulative and expressed as results that can be refuted, i.e. proven to be wrong by empirical experiments. The validity of results is thoroughly tested by peers following rigorous methods, so that only those theories that have proven to predict phenomena in the most reliable and accurate way are kept as the best available approximation of the laws of nature, humankind and society.

The general public and the scientific community participate in a democratic process (with open initiative, amendment and ranking in priority order) to define the research agenda, i.e. the list of research questions of higher priority, and on which to invest resources. The weight of the scientific community in this process is higher in fundamental, advanced questions involving less resources – whereas the general public has a larger weight in applied questions involving more resources.

All results of this activity are published under a free licensing regime.

Publishers of non-fiction texts based on (1) the exploitation of existing data; (2) targeted information; and / or (3) laws of nature, humankind or society as evidenced by scientific research, receive support by public budgets, provided appropriate methodologies were used.



Science is no more made of 3 separate realms:

- social sciences and economics, which essentially were tools of ideological domination by a restricted elite;
- fundamental, expensive science which were managed by scientists only in free-wheeling mode;
- technology whose agenda was determined by economic interests only.

Scientific publications are no longer the lucrative oligopoly of a few publishing firms which exploit volunteer work by scientists, and yet have readers and writers of articles pay.

Non-fiction edition is no longer at the brink of disappearing.

2.1.4 Measurement and accounting

Public and private accounting systems measure and trace:

- all material and energy flows;
- all forms of capital and all material and energy stocks;
- all externalities (i.e. the harm or benefit transferred to others by a human activity).

This accounting supports the careful management of the strongly limited supply of resources, and makes sure that none is wasted. In order to facilitate this monitoring at all scales, every household, organisation, local or regional authority, value chain, and the European Union as a whole, is automatically provided with a regular information on its incoming and outgoing flows and on the state of its stock. The accounts of households and of smaller organisations are aggregated per nature of resources (renewable vs. non-renewable), but can still request a dis-aggregated view.

This accounting is performed in permissioned Distributed Ledgers, to ensure trustworthiness and public scrutiny.

Public and private accounting has no longer the illusion that money is the measure of all things, and that money can compensate for any loss or damage performed in the world of physical and biological phenomena

.Gross Domestic Product – GDP is no longer the exclusive measure of social and economic progress.

2.1.4.1 Measurement and accounting of renewable resources

Renewable resources include:

- the flow of renewable resources (human work, water, agricultural products, renewable energy)
- the stock of capital that can be re-built over time (biomass, soil, human individual or collective capabilities and competencies, human culture, institutions), even in the cases when this capital is much faster to destroy than to re-build, as with forests, which can burn down in a matter of hours, and take centuries to grow again.

Renewable resources can be purchased and exchanged for one another, using a currency (the



currency of class A) which essentially is a form of time. The relative value of each unit of renewable resources is determined by the total yearly flow of resources of each category, at the sustainable rate compatible with the eternal use of this resource: the more abundant the flow of a renewable resource, the less valuable it is. This sustainable rate is determined every year, based on scientific evidence and most recent data, in a multi-stakeholder decision-making process of which the users of the resource are deliberately not represented.

When a renewable resource takes time to be re-built, the value of future flows is actualised using an actualisation rate which is democratically determined as the median value of all values given by citizens, in a permanent and informed public debate.

The currency of class A cannot purchase finite, reversible, non-renewable resources (which need the currency of class B), and cannot be exchanged for any quantity of currency of class B.

Renewable resources are no longer considered as being instantly replaceable, and as having the possibility to be supplied overnight at an infinite speed and throughput.

2.1.4.2 Measurement and accounting of finite, reversible, non-renewable resources

The stock of finite, reversible, non-renewable resources includes:

- the greenhouse effect gases in the atmosphere,
- the chemical elements of the Mendeleiev periodic table – and specifically the Critical Raw Materials that are rare, non-substitutable and economically important
- mineral construction materials (e.g. limestone, granite, gravel, sand, gypsum, clay).

These finite, non-renewable resources can be managed like a reversible reservoir: greenhouse gases can be reversibly dispersed in the atmosphere and then re-absorbed (e.g. by plants or the soil), and properly managed chemical elements or construction materials can be reversibly immobilised in human artefacts and then released for further usage.

Finite, reversible, non-renewable resources can be purchased and exchanged for one another, using a currency (the currency of class B), which is essentially a form of mass (e.g. kg of CO₂ eq). The relative value of each unit of finite, reversible, non-renewable resources is determined by a slow and boring exchange market.

The currency of class B cannot purchase renewable resources (which need the currency of class A), and cannot be exchanged for any quantity of currency of class A.

Each person and each (public or private) organisation using equipment or infrastructure has an account expressed in currency units of class B. These accounts are managed by a public administration whose records are stored on a permissioned Distributed Ledger to ensure trustworthiness and public scrutiny.

The sum of:

1. the number of currency units of class B on a person's or organisation's account; and
2. the number of those incorporated in the material assets that s/he/it owns;



is constant.

This public administration also records global changes in the stock of finite, reversible, non-renewable resources (e.g. due to new discoveries of mineral ores or to changes in land use), and modifies the allocations of all social players accordingly.

The stock of finite, non-renewable resources is no longer considered as being indefinitely extendable, provided the market provides the right price incentive.

(see: Matching savings with investment projects)

2.1.4.3 Measurement and accounting of biodiversity

Biodiversity is a specific category of finite, non-renewable resources, because its usage is irreversible. Once humans have destroyed a living species, there is no means to regenerate it.

Biodiversity is specifically monitored and managed, with a public mandate to preserve it. It cannot be purchased, in any class of currency (A or B).

Biodiversity is no longer ignored in our accounting systems.

2.1.4.4 Measurement and accounting of externalities

All externalities generated by the production, the consumption, the usage and the end of life of of all goods are computed and regularly updated, in a fully open process using open public data. The cost of these externalities is added to the price of each unit of the good as a tax, following the principle "polluter pays", so as to: (1) incentivise the consumer to purchase less harmful goods; (2) provide the European Union with the means to compensate this harm to those impacted.

Examples of such externalities include harm to health or cognitive capacities of humans caused by alcohol or video gaming, or harm to the environment caused by pollutants.

Negative externalities, i.e. costs incurred by society because of the economic activities of some, are no longer dissimulated or minimised to preserve these economic interests.

2.1.5 Distribution of information

The press and social media provide the service of selecting, presenting and analysing these sources of information, under a business model of pay-per-use (per article or for a given volume of original content) or subscription-based (e.g. per month or year).

The press and social media operate no longer under a business model based on advertising. They are thus no more dependent upon economic interests, and have ceased promoting wasteful lifestyles and stopped defaming trade unions and environmental associations.

2.1.5.1 Criteria for selecting information

The criteria used for selecting information are explicit and under the control of the user. The selection algorithm is a "fair software".

Press and social media no longer hook their users to their screens with short, brutal videos or slogans, and no longer polarise debates for the sake of increasing the number of pages (and ads) viewed.



The information selected for broadcasting or displaying on social media is no longer selected for its emotional content, nor to support a world view aligned with the interests of the corporations paying for the advertising.

2.1.5.2 Propagation over social media

Propagation of information over social media is deliberately delayed to force reflection about the quality and reliability of the information received: propagation is only allowed at least 24 hours after having read the information.

In addition, the publication of content on social media beyond a closed, private circle is subject to the regulation applicable to journalists regarding propagation of false news.

The viral propagation of fake news and of emotional content has almost disappeared.

2.1.6 Presentation of information

All news are mandatorily accompanied by the following supporting content, in small but sufficient quantities, and with the possibility to enquire further:

- context information (regarding history, precedents, geography, statistical data);
- existing public policies, technologies or scientific results solving the problem or issue raised in the news;
- public policy proposals, innovation projects or scientific research aiming at solving the problem or issue raised in the news, with a possibility for the person to support either of them.

This supporting content is automatically generated by a "fair software" using Artificial Intelligence technologies.

Thereby, each information received by a person is accompanied by a possibility for the person to engage in concrete action to address it.

The harm caused to the quality of public debate by a content presentation format is taxed as a negative externality: the formats supporting emotional reactions (e.g. short videos) are taxed more than those supporting the development of constructive arguments (e.g. long written articles).

The following vicious circle operates no more: (1) receiving news sustains fear and a feeling of powerlessness, and thus stress – and (2) the only apparent means available to alleviate this stress is to receive more news.

2.2 Agreement on rules and on future actions

* Link: <http://www.kuneagi.org>

Rules and actions (specifically: investments) have consequences in the future, which will affect stakeholders differently.

Decisions on rules and on future actions in public bodies and in private organisations (companies, associations) are taken after a democratic process among all interested parties, based upon the predictable consequences of each option (considering the level of knowledge at the time of the



decision). This process is open to all at each of its stages:

1. initiative, so that any person may raise an issue that s/he believes is important;
2. amendment, so that all interested parties can confront their points of view and agree on a proposal, based on solid arguments;
3. ranking in priority order, so that the (public or private) body involved concentrates its resources on those actions considered as most important by its members.

This decision-making process is supported by a public infrastructure of on-line deliberative democracy platforms similar to the existing KuneAgi software.

Decisions on rules and on future actions in public bodies and in private organisations (companies, associations) are no longer taken after opaque discussions among the few having access to, and able to threaten the decision-makers.

Important issues for the general public are no longer held out of the political agenda. Voters are no longer placed in front of "take it or leave it" choices, be it in elections or referendums.

2.2.1 Debating fairly

* Link: <https://lernu.net/en/esperanto>

In debates involving people of different native languages, regarding analysis of facts or the discussion on future actions in private or public organisations and institutions, the discussions are held in Esperanto, the language designed to be fair and easy to learn.

In debates involving people of different native languages, regarding analysis of facts or the discussion on future actions in private or public organisations and institutions, the domination of (1) native English speakers, (2) of native speakers of Germanic languages close to English, and (3) of those whose parents were rich enough to send them several weeks per year during their teen-age years to be immersed in English-speaking environments, has ceased.

2.2.2 Agreement between private entities

Contracts are the means with which private persons and organisations generally define their future relationships, their mutual rights and obligations and how they will share future flows of goods. E.g. "general terms and conditions" in a retail sales contracts, insurance contracts, B2B sales contracts, employment contracts, artistic agency contracts, licences to use patents and other Intellectual Property Rights, shareholder agreements, by-laws of companies and of advocacy organisations...

All these very generic contracts follow a pre-defined template leaving only minimal room for modification, and designed to be fair to all parties. These mandatory contract templates are defined by law (for the by-laws of companies or of advocacy organisations) or by collective bargaining at the scale of the European Union, among the stakeholders involved or their representatives, e.g. companies and consumers for "general terms and conditions", large groups and SMEs for B2B sales contracts, technology developers and technology users for patent licensing, trade unions and employers' associations for employment contracts, ...

By avoiding to "re-invent the wheel" at each transaction, these templates minimise transaction costs, in addition to being fair.



Contracts such as "general terms and conditions" in a retail sales contracts, insurance contracts, B2B sales contracts, employment contracts, artistic agency contracts, licences to use patents and other Intellectual Property Rights, shareholder agreements, bylaws of companies and of advocacy organisations are no longer re-invented at every new case, for the sole profit of lawyers and consultants.

Contracts are no longer the legal tool cementing the domination of the stronger party on the weaker in a transaction.

2.2.3 Agreement on rules to be enforced by public entities

Laws and regulation defined and enforced by public entities at all scales follow a "universality principle": they are adopted at the largest possible level (typically: the European Union), unless it is demonstrated that it is more efficient and appropriate to regulate at a smaller scale.

Specifically, as a consequence, only one set of rules and one administration exists at the scale the European Union to perform the following tasks:

- collect taxes;
- provide citizens for free with essential goods;
- protect citizens against all forms of safety and security risks;
- define and enforce rules regarding activities that transform the world;
- measure and perform the accounting of resources.

This universality principle is meant to:

- avoid downward competition among entities of smaller scale regarding regulation and taxation;
- ensure a pooling of resources at the greatest possible scale;
- avoid duplication of efforts when solving a public problem / issue: it is debated and discussed once, gathering all arguments and evidence only once and applied everywhere;
- access of citizens and companies to law: it is always more simple to learn one single law which is applicable everywhere, rather than all its local variations.

This "universality principle" nevertheless allows public entities at a smaller scale to experiment with public policies, provided that they are innovative and do not harm others.

The definition of laws and regulation is no longer fragmented into micro-constituencies vulnerable to blackmailing by large economic interests, under the fallacy of subsidiarity. Small-scale polities no longer engage in downward competition regarding regulation, social contributions and taxation, nor do rich constituencies selfishly reserve their resources to their inhabitants only.

Efforts are no longer duplicated in each small-scale polity when solving a generic public problem / issue.

2.2.3.1 Ordinary legislative procedure

* Link: https://en.wikipedia.org/wiki/Majority_judgment



Under the ordinary procedure, decisions of a public body (at all scales, from municipality to the European Union) are taken by its government, which is democratically elected and controlled by one or two chambers of Parliament.

Laws and budgets are decided by the Parliament, often on a proposal by the government.

Members of at least one chamber of Parliament are democratically elected by all citizens via Majority Judgement (to avoid strategic voting) within lists proposed by political parties (which belong to the category of "advocacy organisations" and are regulated accordingly). Voters can attribute a rating to a full list or to each of its members individually. Voting is secret, performed in a polling booth. Vote is made on paper ballots for the sake of traceability, and its results are computed electronically, based on a scan of these ballots and on a "fair software".

The members of the second chamber of Parliament can be representatives of entities at smaller scale. Decisions in this second chamber of Parliament are taken by (qualified) majority.

The votes of each Member of Parliament, of both Chambers, during his/her office are recorded and available as open data for all to monitor.

Vote in majority-based elections is no longer strategic, and determined by the anticipations that people have of the outcome of the first round.

The identity of the Members of Parliament in elections using proportional lists is no longer determined by the party administration defining the ranking of candidates on the list.

Votes are no longer subject to the threats of electronic polling where the absence of trace of the vote cast (and thus of primary data), makes the process prone to manipulation.

Decisions are no longer blocked by unanimity requirements – and thus by a veto right granted to each and every constituent body of a federation like the European Union.

Members of Parliament, once elected, can no longer evade their accountability towards their constituency.

2.2.3.2 Citizens' input to ordinary legislative process

All proposals for legislative texts are disclosed to the general public as soon as they are made available to the Members of Parliament for debate, amendment and decision.

The public on-line deliberative democracy software is used within each political party and among the general public to generate amendment proposals and rank them in priority order. Those amendment proposals that received more than a given number of support tokens are then each addressed to a specific Member of Parliament for consideration.

The treatment made to each amendment proposal by the Member of Parliament and his/her arguments for having done so are published as open data for public debate in his/her own political party and in the general public.

External input to the legislative process is no longer reserved to professional lobbyists having their personal connections to the members of the government or of the Parliament, and working outside of any public scrutiny.



2.2.3.3 Citizens' initiative

The public on-line deliberative democracy software is used within each political party and among the general public to generate legislative proposals and rank them in priority order. Those legislative proposals that received more than a first threshold of support tokens (around 100,000 for the European Union) elicit a mandatory legal evaluation by the EU administration to verify its compatibility with the Constitution (specifically: with the division of powers among levels of government) and human rights. The results of this evaluation and its justification are made public and can be appealed. If the evaluation is positive, and if the number of support tokens for this legislative proposal exceeds a second threshold (typically: 1 million support tokens for the EU), then the government is forced to present this legislative proposal to the Parliament for discussion and potential adoption.

[European Citizens' Initiatives](#) can no longer be blocked by the Commission for legal reasons after having taken the time and effort to collect the required 1 million signatures.

2.2.4 Agreement on decisions by companies

In companies (= organisations that transform material and immaterial flows to provide goods for customers, be they publicly or privately owned), the decision-making bodies (e.g. the General Assembly and the Board of directors) include representatives of all stakeholders that are impacted over the long term by the activities of the organisation (e.g. immediate customers or final consumers at the end of the value chain, local communities around their industrial facilities, financial regulators for a bank...).

Each company publishes a list of categories of stakeholders that it considers as being potentially impacted by its activities, and updates this list regularly. This list always includes its own workers and its own long-term shareholders, customers and suppliers. The company also publishes the number of voting rights proposed to each category of stakeholders.

In companies the decision-making bodies no longer represent the interests of the shareholders only.

Companies no longer attempt to survive at any cost to society or to the environment, when their activities are recognised as harmful.

(see: Transforming the world)

2.2.4.1 Decisions by large companies

In a large company, the list of categories of stakeholders that it considers may be impacted by the company's activities, and the number of voting rights allocated to each category, is submitted for approval by the European Union, and can be appealed by any advocacy organisation.

Once the list of categories with their respective voting rights are accepted, the company calls for advocacy organisations (i.e. those that are regulated as such) to mandate representatives in its decision-making bodies. Workers elect directly their representatives among lists proposed by trade unions. When several organisations from the same category compete for voting rights, these voting rights are allocated proportionally to the number of paying members of each organisation.

Large companies remunerate the participation of external stakeholders in their decision-making



bodies: they pay for their travel and accommodation expenses (in case of physical meetings), for the representative person's time during the meetings and for their preparation, and also its advocacy organisation itself for the support provided to its representative.

2.2.4.2 Decisions by small & medium companies

In a small or medium company, the list of categories of stakeholders that it considers may be impacted by the company's activities, and the number of voting rights allocated to each category, needs no external approval, but still can be appealed by any advocacy organisation.

Once the list of categories with their respective voting rights are accepted, the company calls for individual members of advocacy organisations to participate in its decision-making bodies. Workers elect directly their representatives among lists proposed by trade unions. When members of different organisations from the same category compete for voting rights, these voting rights are allocated proportionally to the number of paying members of each organisation.

Small or medium companies remunerate the participation of external stakeholders in their decision-making bodies: they pay for the person's time during the meetings and for their preparation.

2.2.4.3 When transformation activities are harmful

It may happen that a transformation activity is recognised as harmful to humankind, society or the environment, following scientific research or public debate.

As soon as this is officially recognised, all companies engaged in this activity must engage in a self-liquidation process: their assets are frozen, no profit may be distributed to shareholders, no price reduction for customers nor any salary increases for workers are allowed: all resources are dedicated to provide a decent transition to its existing workers and to the regions where these companies are concentrated.

2.2.5 Agreement on decisions in advocacy organisations

Advocacy organisations do not directly take decisions on actions which have consequences on the outside world. Their decisions are internal, and apply to what actions they as an organisation recommend should be taken by other organisations, such as public bodies and private companies, which have an effect on the outside world. Examples of advocacy organisations include: political parties, trade unions, associations representing specific stakeholders or defending specific causes.

They are remunerated only by fees from their members and by transparent public support.

Only advocacy organisations with fully democratic internal rules and by-laws are allowed to formally participate in the decision-making processes of public bodies and of private companies, and to receive public support.

Non-economic advocacy organisations (e.g. political parties, trade unions, associations representing stakeholders or causes of public interest) can no longer be financially supported by economic interests.

2.3 Agreement on the application of rules

Human time is no longer wasted to evaluate straightforward applications of rules bearing on a finite set of pre-defined parameters.



Decision-making commissions operate no longer in opacity and with no accountability.

2.3.1 Applying rules via human judgement

Many rules are implemented via human judgement, i.e. following the procedures generally used in 2019:

- trials involving human lawyers to defend the interests of all sides and independent human judges to arbitrate between them;
- multi-stakeholder commissions.

All decisions and deliberations are public, recorded and can be reviewed for later appeal. Exceptions to the publicity of debates may arise when: the people involved are minors, there is a risk of threats on the judge.

Human decision-making for the application of rules is performed when the list of parameters to be considered to decide on a case cannot be determined beforehand.

2.3.2 Applying rules via a fair software

Many rules are implemented automatically with a "fair software".

A "fair software" is defined as follows:

- the underlying algorithm is the outcome of a public, democratic debate, and is periodically reviewed;
- the code implementing this algorithm is a free software, its code is public and regularly audited by independent, multi-stakeholder experts (and by the general public) verifying that it meets its purpose, and can be appealed;
- its implementation is publicly controlled: for each case, the input data is compared with the outcome, for anyone to verify that the software has delivered what it was intended to;
- in case of discrepancy between the outcome and what was intended, this outcome can be appealed for redress.

The automated application of rules is implemented when the list of parameters to consider for decision is known beforehand.

3 Environmental sustainability: agreement with the requirements of our well-being and of the biosphere

* Link: https://en.wikipedia.org/wiki/Planetary_boundaries

Scientific results are always open to refutation by new evidence. This openness to possible refutation is even considered as a criterion for an intellectual activity to be considered as scientific.

However, many scientific results (in natural sciences such as physics, chemistry, biology, but also in human and social sciences, such as psychology or sociology) have resisted a broad range of refutation attempts over a long time, and anticipate phenomena reliably and accurately. They constitute what is described as the scientific consensus (aka state of the art), i.e. the best available



approximation of the laws of nature, humankind and society. They are the best means available to humans at a given moment in time to anticipate the consequences of their actions.

The scientific consensus of 2019 anticipates that only some ways of satisfying human needs, transforming the world and managing waste are compatible with our human well-being (ourselves) and with the planetary boundaries (our environment).

The Society of Agreement aligns with these two requirements, with the aim of ensuring an indefinite duration to human civilisation on Earth.

Planned, assured self-destruction

Human society is no longer on the path to self-destruction. It no longer ignores the laws of natural, social and human phenomena with which we can anticipate already in 2019 that many consumption and transformation patterns are incompatible with our planetary boundaries, with our human well-being, and thus with our survival as a human and humane civilisation.

3.1 Satisfying human needs

The general idea is that, whereas human needs are permanent and universal, what society and policies have to act upon is the means to satisfy these needs. There can be very different means to satisfy a given need, some more harmful to fellow humans, society or the biosphere, others more respectful.

What is shown here are the most respectful means that we have identified so far to satisfy humans needs. In general, the satisfaction of needs is provided by collective means, which are more efficient than individual ones because they pool resources, and by mobilising an ethics of frugality and of authentic, inner pleasure.

A specific means to satisfy needs is "frugal innovation" i.e. the technologies and methods of our ancestors (developed at times of scarce energy and resources), but supported by scientific knowledge that makes it more reliable and with a higher performance level (e.g. breast-feeding, wooden construction, cycling). Using these frugal means to satisfy needs implies mastering specific competences (e.g. home cooking, cycling). These skills are taught in the educational system.

Self-destructive satisfaction of human needs

The satisfaction of human needs is no longer geared towards the means most wasteful of resources, and the most harmful to humans.

Consumption is no longer fuelled by the cycle: (1) harmful consumption, (2) repair action on the symptoms, causing specific additional consumption, (3) more consumption.

Consumption is no longer geared towards the fast, easy, and harmful means to satisfy human needs, designed to maximise production and monetary income (and thus GDP).

3.1.1 Satisfying physiological needs

3.1.1.1 Homeostasis

* Link: <https://en.wikipedia.org/wiki/Homeostasis>



Housing is built and equipped so that internal temperature varies between 18°C in winter and 28°C in summer.

Housing is no longer built and equipped with wastefully powerful heating and air conditioning so that internal temperature varies between 25 °C in winter and 18 °C in summer.

(see: Housing)

3.1.1.2 Food

* Link: https://en.wikipedia.org/wiki/Vitamin_B12

Infants are mainly breast-fed.

Children and adults mainly eat a sustainable, healthy and balanced diet made of:

- vegetal proteins and carbohydrates (cereals and pulses)
- vegetal fats
- fruits and vegetables
- B12 vitamin.

Examples of dishes along this model exist in traditional cuisine: minestrone (Italy), couscous (North Africa), dal (India).

Competencies regarding home cooking and meals planning are taught at school. The maintenance and update of these competencies are proposed to adults.

This diet is complemented with poultry, eggs, potatoes and occasionally pork.

The greatest part of food is provided via long-term subscriptions to weekly baskets of fruits and vegetables, with automatic re-fill of non-perishable goods.

Infants are no longer mainly fed with artificial infant milk.

Children and adults are no longer fed with an unhealthy and unsustainable diet based upon meat (mainly beef), dairy, added sugar and fat, and prepared, deep-frozen dishes, purchased in supermarkets.

3.1.1.3 Drink

Drink is essentially provided by tap water.

In addition, fruit juices and teas provide variety in tastes and nutrients.

Alcoholic beverages and drinks with added sugar are charged with a tax taking into account the harm caused to human health.

Drinks are no longer supplied in throw-away bottles or cans.

Drinks with added sugar and alcoholic beverages are no longer promoted as harmless. Their consumption has fallen dramatically.

3.1.1.4 Sleep

* Link: https://en.wikipedia.org/wiki/Shift_work



Work obligations leave at least 11 hours of uninterrupted rest between two periods of work. A worker employed in atypical working hours or in shift work remains in this situation no longer than 2 years in a row, and then works in regular day working hours for 3 years at least.

Shift work or work along untypical working hours no longer is a permanent feature of a person's working life. The health damage due to such working hours is significantly reduced.

The noise of automotive and air traffic, and of outdoor equipment, has been dramatically reduced. The quality of sleep is no longer deteriorated by noise.

3.1.1.5 Elimination

I.e. urinate, defecate, sweat. Nothing glamorous, but yet necessary...

All buildings are equipped with toilets and are connected to the sewage system. All effluents are subsequently treated to restore the water to a purity condition where it can be safely re-introduced into the natural environment.

Wastewater is no longer allowed to reach the environment untreated, wherever the sanitary installation is located.

(see: Used water and human excretions)

3.1.1.6 Shelter

3.1.1.6.1 Clothing

* Link: https://www.goodreads.com/book/show/236842.The_Triumph_of_Individual_Style

Each person wears clothes that are customised to fit his/her body features: colour of hair and skin, proportions, corpulence, (as)symmetry... along universal principles of personal styling. Since these clothes fit the person very well, independently from fashion trends, they can last long and still be appropriate.

Clothes are made of organic natural fibres (wool, flax, hemp, cotton) and of a limited number of synthetic fibres selected for their technical performance beyond what natural fibres feature, and for their capacity to be eternally recycled when selectively collected at end of life.

Clothes are no longer single-use, throw-away fashion items made of non-renewable, non-recyclable man-made fibres, which are designed to fit anorexic models and to make any other normally built person feel as overweight and ugly.

Clothes are no longer ultra-low cost items made under appalling social and environmental conditions of work.

3.1.1.6.2 Housing

* Link: https://en.wikipedia.org/wiki/Ernst_May#The_New_Frankfurt

Each dwelling has the following features:

- its energy performance level in cold weather is that of a "passive house", i.e. that it is so well insulated that it does not need specific heating devices or energy and yet achieves interior temperatures above 18°C;
- its energy performance level in hot and sunny weather is such that the inside temperature



does not exceed 28°C, with no other source of energy than the solar energy reaching it. For this, all buildings have external shutters;

- in most cases, equipment (e.g. washing machines) and areas (e.g. drying room, guest room, secured and sheltered parking places for guests' bicycles / pedelecs, party / ball room) are shared among inhabitants of the same building. Electronic warning systems support this sharing (signal when the wash is finished, video supervision to prevent theft / deterioration),
- the number of floors per building in rural areas is no less than 2. In urban areas the number of floors is no less than 3, but no more than 6. An interesting model is the "New Frankfurt" of architect and urban planner Ernst May.
- it is completely shaded in summer by one or several deciduous trees
- it is equipped with a place to park securely all bicycles / pedelecs of the household under shelter.

All recent buildings are built with a wooden structure (with a fire-proofing coating), so as to thereby capture CO₂ over the whole life duration of the building (potentially for ever).

Housing is no longer made in majority of individual detached single-floor houses made of concrete with no insulation but with over-dimensioned fossil-fuelled heating and electric air-conditioning, and broad windows exposed full South with no external protection.

3.1.1.6.3 Urban planning

* Link: <https://www.harpercollins.co.uk/9780008218430/the-hidden-life-of-trees-the-international-bestseller-what-they-feel-how-they-communicate/>

https://en.wikipedia.org/wiki/Urban_heat_island

Dwellings are located either in rural areas dedicated to farming or in dense (even if sometimes small) urban areas gathered around railway stations, within a radius enabling cyclists to reach the station in less than 10 minutes ride.

The dense urban areas contain all urban services (retail, banking, health care). All parts are connected to one another by a fully connected network of fast cycle lanes, connected to a dense network of local cycling paths. Secure parking places are available for bicycles in streets at intervals less than 50 m from one another.

All streets are planted with one or several rows of deciduous trees, so as to be completely shaded in summer. Trees in these rows are connected to each other by a continuous surface of soil where their roots connect underground to share resources, where other plants grow, and where leaves are collected in autumn to form humus.

Dwellings are no longer located in endless suburban areas that cumulate the social and physical isolation of rural life with the noise, congestion and pollution of urban settings, and where no other means of transport is planned than the automobile.

Parents are no longer forced to spend most of their day taxiing their children and teenagers from one activity to the next.



In dense urban areas, streets are no longer mineral deserts storing solar heat during the day and preventing temperatures from falling to sustainable temperatures at night ("urban heat island" phenomenon).

3.1.1.7 Hygiene

Heat for sanitary hot water is provided by solar heating panels on the roof of each building, feeding well-insulated tanks, complemented by heating provided by electric energy or by the combustion of sustainably managed biomass.

Soap and detergents are sufficiently biodegradable for their post-use residues to be entirely captured by water treatment facilities.

Heat for sanitary hot water is no longer provided by fossil fuels.

3.1.1.8 Privacy

In addition to the protection of privacy provided by housing and clothing, personal data is strongly protected by law. Private data beyond what is strictly necessary to perform a transaction cannot be delivered to profit-making organisations, for whatever reason, even with the consent of the person.

Personal data is no longer an industrial good being extorted by digital monopolists from unaware consumers lured to benefit from seemingly "free" services, and then sold to greedy advertisers eager to manipulate consumers by leveraging their most intimate weaknesses.

(see: Personal data)

3.1.2 Satisfying movement needs

Transport of people, specifically for professional reasons, is minimised by the extensive usage of telecommunications networks (remote meetings with CD-level audio quality, sharing of documents, ...).

Transport of people no longer relies mainly on the wasteful, polluting, dangerous, noisy and climate-destroying private car.

Professional transport of people to meetings or conferences is no longer the pretext for high-speed luxury tourism based on noisy and carbon-intensive air transport, and paid by the employer or by the taxpayer.

3.1.2.1 Commuting in rural areas

In rural areas, the transport system for personal commuting is the same as in urban areas, based on bicycles / pedelecs connected to the public transport network. When no rail network is available within a 5 km radius, then fast and direct battery-powered electric bus lines operating automatically 24/7 perform the same function. All train and bus stations are equipped with supervised and sheltered parking installations for private bicycles / pedelecs, and with bicycle rental stations, to enable end-to-end travel with no need to carry one's bicycle on board the train or bus.

The public transport station (rail or bus) is also the place where public and private services are concentrated (e.g. bank, post, medical preventive and curative care, pharmacy).

In rural areas, the transport system for personal commuting is no longer based on the exclusive



usage of the private car, with public bus services being slow, rare, uncomfortable and insecure – and thus used only by the very poor, the very young or the very old having no other alternative.

3.1.2.2 *Commuting in urban areas*

* Link: <https://en.wikipedia.org/wiki/Pedelec>

The main transport technology for persons over short distances (below 5 km) is the bicycle, potentially with electric power support (pedelec). This applies also to elderly people or to those with a disability, with appropriate adaptations (tricycle).

Above 5 km, the travel is connected with public transport. All railway and public transport stations (metro, tramway, bus) are equipped with (1) supervised and sheltered bicycle parking stations for private bicycles and (2) bicycle rental stations. Thereby people access bicycles at both sides of their commuting travel, and do not need to carry their personal bicycle with them on board the train / metro / tramway / bus.

Urban commuting is no longer essentially based upon the usage of the private car stuck in endless, noisy and polluting traffic jams.

3.1.2.3 *Intra-continental travels*

Long-distance travel beyond daily commuting, within a continent (specifically within Europe) is performed by high-speed train or by boat. High-speed trains travel also by night in a couchette configuration. Couchette high-speed trains arrive in the morning in specific stations equipped with showers, potentially several kilometres from the main station in the city centre. Fast and frequent shuttles connect these stations with the city centre and with the public transport network for local commuting.

Intra-continental tourism can be performed every year, because of the generous allocation in paid holidays, which allow for stays of several weeks in a row – compatible with a day or two of travel each way. The interactions between tourists and the local population are of high quality, because all master the international communication language Esperanto at conversation level.

Long-distance travel beyond daily commuting, within a continent (specifically within Europe) is no longer performed with low-cost airlines paying no taxes for their kerosene, paying no social contributions for their personnel, and whose main source of income is to be subsidised by local authorities to connect their constituency to their network.

People no longer take a week-end off to a "city trip" at the other end of the continent to exploit differences in economic development at their advantage, while restricting their interactions with the local population to coarse and unequal economic transactions in approximate English.

3.1.2.4 *Inter-continental travels*

Inter-continental travels are extremely rare. If performed at all, they are performed by boat.

In general, a person performs one, or exceptionally two, inter-continental holidays in his/her lifetime. These holidays last several months to a year, to be compatible with one or two weeks of travel one way. They are thus carefully prepared and chosen, in order to maximise the learning received.



Inter-continental travels using air transport with its attached high emissions in Greenhouse Gases are no longer commonplace for holidays or business.

People no longer take a week off to a beach on another continent – when similar beaches are available at home, and without even considering the cultural or natural specifics of the country they travel to.

3.1.2.5 Flee danger

People and families under a life- or integrity-threatening danger (e.g. because of civil or external war, social unrest, natural disasters such as earthquakes or man-made disasters such as climate change) are protected by asylum right.

People and families under a life- or integrity-threatening danger are no longer left defenceless in front of brutal and money-extorting smugglers.

3.1.2.6 Seek better life conditions

Movement of people within each jurisdiction is free.

Movement of people between jurisdictions is regulated by bi-lateral (and preferably multilateral) international agreements defining the numbers and composition of migration flows. Incoming human flows are distributed geographically in the destination countries to encourage cultural integration.

Movement of people between jurisdictions is no longer a chaotic mixture of brutal, inapplicable rules, of evasion from responsibilities by all governments involved (in the source and in the destination countries) and of dramatic concentration of problems in some geographical areas.

3.1.3 Satisfying needs for social belonging

3.1.3.1 Love / friendships

Love and friendships are authentic, with no economic or patrimonial interference.

Love and friendships are no longer hypocritical exercises where the weak attempts to obtain economic or social advantages from the powerful, by essentially selling his/her soul or body (or both).

3.1.3.2 Membership

Citizens have a sense of belonging to a rewarding community for the two following reasons:

- they are proud to have achieved the transition to a sustainable society, while preserving peace, democracy and human rights – a fantastic achievement, comparable to having won the most challenging war;
- they act together, cooperatively, in the governance of organisations of all sizes and purposes, and share information relevant to the decisions related to these organisations.

Persons need no longer to stare at the same video content (on television, on tablets or on smartphones) to feel connected to others, and thus no longer destroy their capacities to concentrate, to learn, to feel empathy and to communicate with others.

*Link: <http://www.mariewinn.com/plugin.htm>



Citizens need no longer need to connect to brutal crowds built along an "us" vs. "them" pattern, such as gender, national or ethnic groups, football supporters' clubs or purchasers of a given brand, to feel strong and secure.

3.1.4 Satisfying the need for confidence in one's future

Every person is confident that s/he is fully supported by society, and that this support is rock-solid.

People are no longer in a permanent state of fear, stress and anxiety, where they feel that they can rely only on themselves and on their closest family members and allies.

3.1.4.1 Security against internal violence

All citizens feel, and are, considered and respected. They are on an equal economic, educational and social footing with all others. They have a high level of confidence with their fellow citizens. This provides a general feeling of security.

In case a person breaches the law, the work of the police to identify him/her is made easier by the traceability of all financial transactions, by the individual marking of all material objects, and by the broad support in the population of a just social order.

The root causes of social violence, namely inequalities, fear and humiliation, have essentially disappeared.

Security is no longer managed by an escalation of violence between increasingly desperate and derelict poor and increasingly intrusive, brutal and unaccountable police forces.

3.1.4.2 Security against external violence

In the long term, the scale at which society is democratically governed is the whole world, so that no human community is threatened by another one.

In the mean time, as long as several independent jurisdictions coexist, international peace between them is supported by a multilateral order governed by law, and whose absolute priorities are: (1) environmental sustainability and (2) justice in the allocation of Earth's resources.

If this framework does not suffice, the external security of the European Union is ensured by the following means:

- highly decentralised and partially redundant networks of all types (power, telecommunications, transport) with no single point of failure;
- abundant stocks of non-perishable goods and ammunition, sufficient for 6 to 12 months;
- well-functioning cyber-defence means;
- local defence forces based on conscription and trained at civil protection, law enforcement and techno-guerrilla defensive tactics;
- professional armed forces (land, navy and air force) including a fully autonomous and integrated Command, Control, Communications and Intelligence capacity, including from space.

International order is no longer maintained by the armed intrusion of mercenary expeditionary



forces from rich countries, often perceived as neo-colonial, into poor, unstable regions of the world.

The populations in poor regions struck with the life-threatening droughts and natural disasters that are consequences of global warming, are not left desperate and alone, with no other resource than violence (aka "terrorism") to have the world take care of their problems.

The allocation of essential natural resources is no longer skewed in favour of the rich and the powerful.

3.1.4.3 Safety against natural or man-made disasters

Every person is provided with a lightweight, long-autonomy civil protection warning device, which provides him/her with instant alert and information, in his/her language and taking into account his/her potential disabilities, regarding natural or man-made disasters, and on the preventive actions to take in order to preserve one's safety. This device can be included in another home appliance or mobile device, but it operates autonomously for at least 24h with no need for a connection to the electric grid. Its good functioning is checked every month.

The population is trained regarding the general safety behaviour to have in case of natural or man-made disasters.

Populations are no longer left alone and helpless in case of natural or man-made disasters, hoping for a timely and appropriate intervention from an overwhelmed, under-staffed and under-financed State to take care of them.

3.1.4.4 Safety against accidents / illness

The prevalence of lifestyle-related chronic diseases (i.e. cardiovascular, cancer, type II diabetes, mental disorders), which in 2019 constitute the bulk of health problems and of premature deaths in Europe, is strongly reduced by the following factors:

- a diet based essentially on vegetable food;
- a fraction of commuting travel performed by active modes of transport (by bicycle or by foot), providing a moderate but daily physical activity;
- good working conditions (with shift work during limited periods only in life) and a participation in the workplace's governance giving a sense of purpose and of mastering one's destiny, thereby limiting chronic stress;
- active and rewarding leisure activities in positive interaction with fellow humans;
- a peaceful and friendly, equal and safe society further limiting chronic stress.

Each person is followed by a general practitioner, who has access to the person's full health records. Each person undergoes a mandatory yearly health check to detect any health problem early.

In case of illness, accidents or injury, health care is a graduated response in the following order:

1. first aid provided by a widely-trained population;
2. a dense network of dispensaries;



3. well-equipped hospitals.

Lifestyle-related chronic diseases (i.e. cardiovascular, cancer, type II diabetes, mental disorders) are no longer propagated by the following factors:

- a diet based essentially on meat, animal fat and added sugar;
- sedentary lifestyles;
- chronic stress at work due to precariousness, untypical working hours and a sense of meaninglessness;
- social isolation of people stuck on "social" media in front of their smartphone;
- a violent, hostile, unequal society where people permanently fear each other.

Good-quality health care is no longer a luxury that only the rich can afford.

The poor are no longer being sanctioned for not having the "healthy lifestyle" that all aspects of their lives and environment prevent them from exerting.

Health data is no longer privately appropriated by digital monopolists feeding them to pharmaceutical companies focusing their innovation efforts on the illnesses of the rich.

3.1.4.5 Safety against loss of capacity

The physical and mental capacity of persons is sustained over a long time because of the factors that also limit lifestyle-related chronic diseases.

In case a person loses a capacity for whatever reason (accident, illness or old age), s/he is first supported in his/her daily life at home and at work by technical substitutes (starting with optical glasses or an audio prosthesis), and then either by a human or a robot assistant, at the person's choice.

Dedicated homes for the care of the elderly, the persons with disabilities or the mentally ill are the solution of last resort.

The physical and mental capacity of persons is no longer deteriorated fast by the same factors that also cause lifestyle-related chronic diseases.

People no longer are left alone to save for the risk of loss of capacity in old age, or in case of disability or illness.

3.1.5 Satisfying the need for learning

3.1.5.1 Learning about other cultures

Students learn the foreign language that they feel culturally or emotionally most connected to – because international communication is performed with Esperanto.

(see: Debating fairly)

3.1.5.2 Learning at all ages

(see: Education)



3.1.6 Satisfying the need for self-esteem and self-actualisation

“Self-actualisation” means realising one's full potential as a human, for the common good of humankind and of our natural environment.

People no longer seek self-esteem and self-realisation by consuming and displaying expensive and ostentatious luxury goods, whereby they desperately attempt to demonstrate to others and to themselves that they belong to the rich and the powerful.

3.1.6.1 Meaningful work

All citizens have a meaningful and rewarding work, in good conditions and with a decent salary.

People are no longer disengaged from a work that is:

- meaningless and aimed at the exclusive satisfaction of remote and greedy shareholders;
- performed under hard and brutal social relations between colleagues and with the hierarchy, under a permanent threat of being dismissed overnight;
- under bad material working conditions; and
- badly paid.

(see: Earned access to renewable resources)

3.1.6.2 Participation in democratic decision-making

All citizens are invited to participate in the democratic, multi-stakeholder governance bodies of all sizes and sorts of private and public institutions, where they can perceive that their voice is valued, heard and has an effect.

People no longer feel disempowered and neglected in decision-making at all scales. They no longer have the feeling that decisions are taken above their heads, in opaque circles where only the rich and the powerful have access, to the exclusive benefits of the few, and with no consideration for their needs.

(see: Agreement on rules and on future actions)

3.1.6.3 Artistic & Physical activities

The number of hours being worked by humans is sufficiently low for them to have time for (e.g. artistic or physical) activities of their own choosing, in which to develop their creativity, talents and skills, with no pressure for performance or quality.

Artistic activity is free (as in "free speech"). This freedom is protected by law. Public bodies support cultural and artistic activities.

Artists must however pay for the resources of all kinds (renewable and non-renewable) that they use (e.g. paint and dyes, carving stone).

When an artistic form causes damage to human physical, neurological or mental health (e.g. fast-moving, violent videos), the corresponding costs are transferred to the user via a tax on negative externalities.



Artistic freedom is no longer the pretext for harming humans, their sensitiveness, their emotions and their neurological integrity, for the sake of profit.

Physical exercise is less of a "sport" feeding upon competition, and thus no longer a show business, a propaganda tool for an ideology of competition and an advertising medium.

3.1.6.4 Innovation

The generation, publication and discussion of innovative ideas are free (as in "free speech").

Every citizen is endowed with a starting capital for investing in his/her innovative ideas, provided some conditions are met.

Patents protect innovative ideas, provided that the technical means to perform the intended function are indeed innovative, and described in sufficient details in the patent for others to replicate it.

(see: Investing to satisfy future needs)

3.2 Transforming the world

Society transforms what our geological, geophysical and biological environment provides (e.g. respectively mineral ores, wind, soil) into goods that are usable by humans to satisfy their needs. This transformation is performed in agreement with the laws of physics, biology and geology, and follows F. Bacon's aphorism (1620) "nature is only to be conquered by obedience".

Transformation performed on data, energy, non-living matter and plants is highly automated, whereas that performed on humans and other animals is less so.

Transformation is performed by collective organisations that have accumulated capital of all sorts (in processes, knowledge, software, machines, equipment, buildings, access to land) and human individual and collective competencies, in order to operate with a high degree of efficiency in the usage of resources.

These organisations can be public (i.e. owned by the European Union or by entities at a smaller scale) or private.

The purpose these organisations is: (1) to provide goods to solvent customers; (2) to contribute to the goals of public policies.

For all these organisations, profit is the condition for operating (because permanent losses mean that capital is being destroyed which would be better used elsewhere) – it is not however their purpose. All organisations are thus "with profit", but not "for profit".

The organisations concentrating the technical and institutional capacities to transform the world are no longer corporations whose sole purpose is the profit of shareholders, and who too often prosper under the following business model:

1. private appropriation of a capital created by nature (e.g. natural resources) or by others (e.g. well-trained workforce leaving the public education system);
2. destruction of this capital and distribution of proceeds to greedy shareholders;



3. appropriation of a new, yet untapped form of pre-existing capital.

(see: Agreement on decisions by companies)

3.2.1 Transforming information

* Link: <https://doi.org/10.1038%2F530144a>

The fast exponential growth in the performance of electronics since the 1960s (known as "Moore's law") has ended between 2018 and 2020. Therefore, digital technologies are stable, with very limited and slow evolutions.

The illusion has disappeared that the fast exponential growth in the performance of electronics experienced since the 1960s (known as "Moore's law") will last for ever.

The pace of technological change is no longer expected to be permanently "exponential" or "disruptive". The technological changes in the electronics sector are no longer the pretext for claiming that the future is intrinsically unpredictable, and thus that regulation is both useless and harmful.

3.2.1.1 Software

* Link: <https://www.gnu.org/philosophy/free-sw.en.html>

Software is free and eternal.

Because the fast exponential growth of the performance of electronics since the 1960s (known as "Moore's law") will have ended between 2018 and 2020, there will by 2050 be no need for updates of software – which will thus become an eternal element of our social infrastructure.

Because this infrastructure has become so vital to our societies, it is available to all under a free licence regime, and is managed by a non-profit organisation gathering all stakeholders.

Software is no longer a private property, owned by for-profit corporations, and protected under a hurriedly patched-up system of "author's rights" that in effect provides an eternal rent for a one-off innovation (because it lasts 70 years after the death of the last author of a collective work, which, in the case of employees in a corporation which are permanently renewed, means for ever).

3.2.1.2 Data

3.2.1.2.1 Personal data

* Link: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32016R0679>

People have full control over their personal data, in a manner analogous to the current European General Data Protection Regulation – GDPR.

The general terms and conditions for the usage of an on-line service are defined in a mandatory template. This template prohibits the capture and re-selling of personal data for usages other than the public good.

Personal data is no longer a good being extracted from persons under blanket unilateral "terms and conditions", in which consent to any use of personal data is given in exchange for access to a service claimed to be "free".



3.2.1.2.2 Non-personal, machine-generated data

Access to non-personal, machine-generated data is freely available to all, under an open format and licence, so as to share as broadly as possible all the embedded information (e.g. to improve the industrial process, the maintenance or the design of the machine).

Access to non-personal, machine-generated data is no longer privately appropriated by digital monopolists. These digital monopolists are no longer in a situation of being the only ones able to generate Artificial Intelligence-based machines based on teaching from this data, for the driving, the maintenance or the improvement of these machines. They are no longer in a situation of extracting a permanent rent from the whole industrial sector.

3.2.1.2.3 Accounting

Accounting is deeply automated and standardised. All transactions are automatically recorded (e.g. by the bank) in a standardised format, and the allocation of expenses or income to their respective accounting categories is automated (using e.g. Artificial Intelligence).

Accounting rules are the purpose of democratic debate and decision, and are periodically revised. They favour long-term thinking, internalise externalities and align the behaviour of the company with social and sustainability goals.

Accounting is no longer a tedious, complex and partially arbitrary task, mastered by a few to evade social and fiscal obligations of the rich and the powerful.

* Link: <https://www.ifrs.org/groups/international-accounting-standards-board/>

Accounting rules are no longer defined by private, democratically unaccountable bodies such as the International Accounting Standards Board, with the only mandate of describing the value of a company if it were to be liquidated immediately, for the needs of high-speed stock markets (and with no consideration for the long-term nature of its assets and liabilities).

3.2.1.2.4 Administrative forms

All interactions with the administration are automated: forms are automatically filled in. The relevant explanation, based on the identity of the person or the organisation and upon the records of financial transactions held by the bank, is generated automatically. The only action requested from the person or the organisation is to correct the form if necessary, and then validate the form and the payment.

Interactions with the administration are no longer a burden for the people in charge of organisations (e.g. of SMEs). This burden is therefore no longer an excuse for these same people for refusing regulation.

3.2.1.3 *Telecommunications*

Fixed and mobile telecommunications networks and the attached services (e.g. messaging, social networking, ...) are strongly regulated public monopolies. Regulation includes universal access and neutrality between contents of similar priority.

Fixed and mobile telecommunications networks are no longer saturated by huge volumes of meaningless video streams, which force networks to be blatantly over-dimensioned.

(see: Propagation over social media)



3.2.1.4 Intermediation

All intermediary digital platforms that match entities with one another (providers of information with users, consumers or professional customers with suppliers, single persons for love or relationships, partners in cooperative research projects, ...) are strongly-regulated public monopolies. The matching software, and the way it considers the preferences expressed by the users, is a "fair software".

Intermediary digital platforms that match entities with one another (providers of information with users, consumers or professional customers with suppliers, single persons for love or relationships, ...) are no longer private profit-driven monopolies. The matching software, and the way it considers the preferences expressed by the users, is no longer a proprietary, opaque software, geared towards maximising the profits of the platform owner, and not the interests of the users.

3.2.1.5 Product design

* Link: https://en.wikipedia.org/wiki/Reference_design

For all durable goods, a reference design is made public and available to all under fair legal and economic conditions (defined as one of the fair contract templates). This reference design incorporates:

- the latest requirements regarding environmental performance;
- the latest technical developments;
- the best known compromise between ergonomics, ease of use and durability.

The design of industrial goods is no longer a proliferation of meaningless and useless variations of "style", whose sole aim is to enable consumers to mark their (claimed or real) social status in an unequal society, and with no consideration of functionality, ease of use, or usage of natural resources.

(see: Agreement between private entities)

3.2.2 Supplying energy to fixed locations

3.2.2.1 Electric grid

The electricity grid is fully-renewable, based upon wind power and solar photovoltaic cells palced on rooftops (and, where available, geothermal energy, hydroelectricity, marine currents). It is fully inter-connected at continental level, with sufficient storage capacity to permanently match energy supply with requirements.

The electricity grid no longer relies upon fossil fuels for its base generation and for its capacity to match peak demand.

3.2.2.1.1 Electricity generation

Electric power is generated by:

- hydroelectric power plants in mountainous regions and along large rivers;
- wind power farms in windy regions (in Europe: around the North Sea and on the Atlantic



Ocean, in some valleys) and offshore;

- photovoltaic cells on all rooftops;
- geothermal energy in seismic / volcanic regions (in Europe: in Italy, Greece, the Balkans).

If thermonuclear fusion technology reaches industrial grade production capacity (which in 2019 remains highly uncertain), then it is used in addition. The hypothesis taken is that society operates in a satisfactory manner without thermonuclear fusion.

3.2.2.1.2 Electricity storage

* Link: <https://en.wikipedia.org/wiki/Power-to-gas>

Electric energy is stored during periods when renewable energy exceeds demand, in order to overcome the longest foreseeable situations when neither wind nor solar light is available, i.e. winter anticyclonic conditions (no wind, 16 hours darkness / day, at continental scale, for weeks). This long-term storage is ensured with power to gas technology (based on water electrolysis) and underground storage of hydrogen or of methane (potentially alongside storage of oxygen to enable the oxy-fuel combustion of methane for easy recovery of carbon dioxide). This means that all existing geological formations (such as salt domes) appropriate for underground storage of hydrogen or oxygen are used to full capacity (the existing storage capacity of natural gas is sufficient to store the needed methane).

3.2.2.2 Solar heating

All buildings are equipped with thermal solar panels to heat sanitation water. All used water flows exiting the building exchange their heat with the incoming flows of water, so as to pre-heat it before it enters the thermally insulated warm water tank. When solar energy is insufficient to heat sanitation water at the appropriate temperature, it is complemented by renewable sources (sustainably grown biomass or electrically-powered heat pumps).

Heating the buildings is needless, because all buildings are insulated at passive-house performance level.

Heating of housing or office buildings is no longer necessary.

The heating of tap water in houses and tertiary buildings is no longer performed with fossil-fuelled heaters

3.2.2.3 Solar cooling

* Link: https://en.wikipedia.org/wiki/Absorption_refrigerator

All buildings are equipped with absorption refrigerators to cool them up in summer time.

Buildings are no longer equipped with electric air conditioners that consume electric power, are noisy and contain powerful greenhouse gases which contribute to global warming by leaking during usage and during careless dumping at end of life.

3.2.2.4 Solar cooking

* Link: https://en.wikipedia.org/wiki/Solar_cooker

Slow cooking processes preserve the vitamins and oligo-elements of food. As often as possible,



this slow cooking is performed via solar cookers on the rooftops or terraces of houses and buildings.

Cooking is rarely performed at high temperature (e.g. frying, wok cooking, barbecue) over intense sources of energy (gas, electric stoves, charcoal) in the open, which is both wasteful of food nutrients and of energy.

3.2.3 Transforming matter

All transformation processes performed on inert, non-living matter are revertible, or close to being revertible.

Consumable products (e.g. soap, lubricants, paint, paper, ink) and their packaging are designed to minimise their consumption, to be recoverable after use and recyclable over at least 100 cycles while keeping their functionality, or to dissolve with no harm to the environment after use.

Durable goods (e.g. domestic appliances, computers, professional machinery) and the maintenance services attached to them are designed for these goods to last at least 50 years (25 years for clothing and footwear) when appropriately maintained (and even 100 years for professional machinery). They are also designed for industrial-grade repair, upgrade, re-manufacturing and re-use of parts, by using automated and standardised test, diagnosis and dis-assembly processes. In order to achieve this, each material item is individually traced and its history recorded.

Most transformation processes are performed on demand, so as to minimise stocks and waste. This entails delays, which are however accurately predictable because of the quality of trust along the supply chain (due to fair contracts) and of the reliability of the transformation and logistics processes.

Transformation processes performed on inert, non-living matter are no longer irreversible changes leaving no alternative to landfill or incineration at end of life of the product because its constituents can't be separated any more.

Packaging is no longer single-use – and meant to be thrown away immediately after.

Durable goods (e.g. domestic appliances, computers, professional machinery, clothing) are no longer throw-away products designed in order to be neither maintained, nor repaired, re-used or recycled, and to last just above the legal guarantee period (and to be simply replaced by a new item in the frequent case when they fail before that date), in a planned obsolescence process.

The accountability and liability of the manufacturer can no longer be evaded by hiding behind layers of successive shell companies.

Stocks of products are no longer piled up to speed delivery, with the risk of them being thrown away if the expected demand does not materialise.

3.2.3.1 Choice of materials

3.2.3.1.1 Homogeneous materials

All homogeneous materials of which the material goods are made (metals, plastics, glass, chemicals, man-made fibres) are obtained via recycling, at the end of the very long life of all



durable industrial products. Recycling is made eternal with no deterioration of quality at each cycle, by preserving the purity of each material flow, in the following way: for each category of materials, only a limited set (20 to 50) of strictly-defined varieties are allowed (with one colour only per variety), and each variety being traced, sorted and recycled separately.

Some plastics are generated from biomass, e.g. micro-algae. By being incorporated into long-lasting products and eternal recycling, they thereby capture CO₂ and keep it out of the atmosphere over very long periods of time (potentially eternally).

Homogeneous materials are no longer extracted from mines, oil wells or quarries in a linear flow leading to the generation of waste. They are no longer infinitely diversified in composition and colour, which results upon collection for recycling in an uncontrolled mixing of many unspecified components that deteriorate the purity (and thus the quality and performance) of the resulting recycled material, leading to "down-cycling" spiralling towards ever lower quality, rather than authentic, eternal recycling.

3.2.3.1.2 Composite materials

* Link: https://en.wikipedia.org/wiki/Composite_material

Composite materials are only used if their component materials can be separated at end of life into one of the (20 to 50) standardised homogeneous varieties authorised for each category of materials, so as to feed the eternal recycling flux.

Composite materials are no longer irreversible combination of inseparable materials, which finds no use at end of life other than being landfilled or incinerated.

3.2.3.2 *Shaping material pieces*

3.2.3.2.1 Hard materials

Hard material pieces (e.g. in metal or plastic) are shaped via moulding, machining (i.e. removing matter from the piece) or addition of matter (aka 3D printing). The lubricants used in machining are filtered and re-used over several hundreds of cycles.

All matter removed from a piece is fed back to the recycling of the material, after removal of the lubricant.

Scraps of hard materials (e.g. in metal or plastic) resulting from moulding or machining (i.e. removing matter from the piece) are no longer left contaminated by the lubricant and thrown away.

3.2.3.2.2 Textiles and soft materials

* Link: <http://www.gemtex.fr/fields-of-research-2/human-centred-design/>

The clothes fitting each person's individual body style are presented to her using virtual prototyping tools, based on the person's body metrics (proportions, size, colours) measured in specialised urban outlets. Once the garment is chosen, the pieces of textile needed to make the garment are individually cut by an automated laser tool at a cost identical to that of mass production, in a process known as "mass customisation".

Clothes are no longer mass produced ready-made, with the social and advertising pressure of "fashion" being imposed on consumers (whatever their tastes and body features) to create the homogeneous, large-scale market compatible with this production model.



(see: Clothing)

3.2.3.3 Surface finishing

* Link: https://en.wikipedia.org/wiki/Surface_finishing

Surface finishing is revertible: all layers of matter applied to a substrate can be selectively removed for recycling, either via a chemical operation (e.g. solvents), via mechanical means (e.g. abrasion) or via heating.

Surface finishing is no longer irreversible, which forces to destroy or throw away the whole bulk piece of material, even if only the thin pellicle of coating at the surface is deteriorated.

3.2.3.4 Assembling

Assembly of pieces is fully revertible, so as to enable dis-assembly with no loss of functionality of either of the assembled elements.

Assembly of pieces is no longer irreversible (e.g. by gluing or clipping), so that disassembly no longer forces to destroy the assembled pieces.

3.2.4 Transforming non-human living beings

3.2.4.1 Cultivated plants

* Link: https://en.wikipedia.org/wiki/Regenerative_agriculture

Plants are grown for human and animal usage with "regenerative agriculture", i.e. organic farming (no pesticides, no artificial fertilisers) in which the soil is permanently covered with vegetation (to regenerate it and prevent water evaporation) and trees in the field and around it (in hedges) protect against wind and against excessive heat and provide leaves that feed the humus.

The general idea is to use every particle of light to grow plants, and to rely on naturally existing phenomena to maintain and regenerate a living soil.

This principle is also used for the sustainable management of forests. Forests are a diversified mix of trees of different ages, to enhance robustness and mutual support, and to create a rich and complex eco-system.

Plants for human and animal usage are no longer grown with massive usage of:

- unsustainable mineral-based fertilisers (which are made from the combustion of natural gas in air for nitrogen – thereby generating GHG emissions, and from potash and phosphates mines);
- pesticides that too often are toxic for humans but more importantly destroy all forms of life, and particularly the insects at the root of food chains and of organic decomposition processes;
- heavy mechanical soil treatment and ploughing that generates a water-tight "plough pan"; and
- unsustainable irrigation in which limitless water extraction exhausts the groundwater stocks.

Forests are no longer boring and fragile monocultures of single high-yield species, prone to



epidemics and wildfires, which are cut down at short intervals over broad surfaces where the soil is destroyed by being exposed to drought and heat.

3.2.4.2 Farm animals

Farm animals are mainly bred and grown to process and store the energy of plants that humans cannot assimilate directly (e.g. from grasslands), that of food leftovers (e.g. pigs, chicken), or of plants growing in zones where it would require too much human work to grow directly the plants that we can use directly (e.g. on steep mountainous slopes). Sheep are also used to provide wool fibre, whereas horses are used for the traction of heavy loads (e.g. in forests).

Farm animals are no longer grown for the sole purpose of their meat to be eaten as a component of an unhealthy diet. They are no longer grown in massive "breeding factories" in inhumane conditions for the sake of cost reduction.

3.2.4.3 Wild life

Urban and rural areas leave sufficient inter-connected space (in the form of "green and blue networks" of forests, hedges, meadows, wetlands, waterways), water and nutrient for wild flora and fauna species to develop and sustain themselves in rich, mature and diversified eco-systems.

Local wild flora and fauna species are no longer heading towards mass extinction because of a combination of (1) pesticide usage, (2) destruction and fragmentation of habitat by roads, parking lots and urban sprawl, (3) external invasive species and (4) climate change.

3.2.5 Transporting material goods

Material goods are transported using the means with the least energy consumption for each leg of the travel. As a consequence, it is organised as a multi-modal transport with several transloading operations. Each container and item is individually tracked, and the state of the transport infrastructure is permanently monitored, so that transport duration is precisely anticipated.

Material goods within a continent are no longer transported almost exclusively on polluting, noisy, dangerous, energy-inefficient and climate-destroying lorries, even over long distances across this continent and for delivery in urban areas, for the sake of uninterrupted, direct, point-to-point, just-in-time logistics. Lorry drivers are no longer the slaves of modern times, submitted to limitless downward competition on wages and to endless working hours, at the cost of their health and of the safety of others.

Inter-continental transport is no longer performed on oil-powered ships.

3.2.5.1 Transport in urban areas

* Link: https://en.wikipedia.org/wiki/Freight_bicycle

Small battery-powered electric lorries (below 3.5 t) and electrically-assisted cargo bicycles transport goods over the short distance (a few km) between the rail or waterway network and the urban locations where material goods are delivered to the consumer (in retail stores or pick-up stations for e-commerce) and retrieved from him/her after use (for maintenance, repair, re-use, re-manufacturing or recycling).



3.2.5.2 *Transport in rural areas*

The bus or train stations connecting commuter traffic on bicycle / pedelec with the public transport system is also the place where material goods are delivered to the consumer (in retail stores or pick-up stations for e-commerce) and retrieved from him/her after use (for maintenance, repair, re-use, re-manufacturing or recycling).

They host rental stations for transport carts to be hooked to bicycles / pedelecs, which are to be used for this transport of material goods.

The transport of goods from the rail or waterway network to the bus stations where people can collect them with their personal bicycle / pedelec is performed over short distances (<25 km) with battery-powered electric lorries (potentially with automated driving) circulating at maximum 50 km/h.

3.2.5.3 *Transport between factories in a supply chain*

The short transport leg (<25 km) between a factory, a logistics dispatching centre (or more generally any place where material goods are being transformed in large quantities) and the rail or waterway network is performed in standard containers, on electric, potentially automated lorries travelling at a speed below 50 km/h.

3.2.5.4 *Intra-continental transport*

* Link: https://en.wikipedia.org/wiki/Classification_yard

Long-distance transport of material goods is performed on the rail or waterway network. The railway network of 2019 is complemented by the conversion of motorways into railways. On these networks, a multi-modal interconnection station exists every 20 km, where material goods are transferred between electric lorries / cargo bikes and the train / the barge. These stations contain a dispatching unit where the content of a container is divided into the smaller loads of cargo bicycles / urban lorries and reciprocally where the content of several cargo bicycles / urban lorries are collected into a single container.

The dispatching of containers from a given origin towards several destinations is performed in renovated marshalling yards, where overhead cranes shift containers from one train to the other.

Trains are electric, fed by overhead lines. Barges on inland waterways are also electric, fed by batteries that are re-loaded at each lock.

3.2.5.5 *In inter-continental transport*

Inter-continental cargo ships are powered by electric engines fed by fuel cells and a large container of hydrogen to ensure long-distance autonomy.

3.2.6 *Educating and taking care of humans*

The education and care of humans follows the general ethical principle of relying on their consent, and on the following high-value features that they share:

- empathy,
- desire to cooperate and to act for the common good,



- capacity to engage in peaceful and respectful discussion,
- moral sense and
- rationality.

Humans are no longer subject to manipulation by advertising or "nudging", which preys on cognitive biases (e.g. aversion to loss) and on the reptilian brain and its primitive reflexes of fear, hunger, thirst and sexual desire.

3.2.6.1 Education

* Link: <http://www.hup.harvard.edu/catalog.php?isbn=9780674729018>

Education is among the goods provided for free by public budgets. It is provided from birth to the age of 18 years, and then during 5 years to be taken any time in life.

Education is based upon the following principles:

- support for the existing capacities of the learning person, and their development to their maximum potential;
- respect for the learning person's personality and creativity;
- increasing autonomy of the learning person, until the full autonomy of adulthood;
- transmission of truth and of the capacity to assess autonomously truth and trustworthiness.

The resources dedicated to education are used efficiently, making the best usage of available knowledge regarding the transmission of capabilities and knowledge over generations.

Education is no longer a good reserved to a wealthy social class, which then uses it as a tool to justify the inheritance of its domination from one generation to the next.

Education is no longer fraught with the following plagues:

- suppression of the existing capacities of the learning person, for the sake of social conformity;
- promotion of obedience, submissiveness and uncritical acceptance of the argument of authority;
- lack of resources, over-crowded classes and overwhelmed teachers;
- destruction of the young peoples' brains and capacities (cognitive and emotional) through unrestricted exposure to video content on all forms of screens (television, tablets, smartphones);
- uncritical application of ungrounded and inefficient pedagogical theories.

3.2.6.1.1 Early childhood (0-5 years)

* Link: <https://heckmanequation.org/resource/early-childhood-education/>

Early childhood is the moment in life where essential capabilities are learnt: motricity, language, social interactions, urinary and anal continence... Considering the long-term consequences of early childhood education and care, it is provided in a high quality environment: well-trained and



decently paid personnel; high adults / children ratio; wide, safe and secure space for children's movements; strong interaction with and involvement of parents.

Early childhood is no longer a neglected moment in life where the needs of the child are believed to be exclusively biological, and where it is believed that any woman, because she is a woman, natively has the skills necessary to provide care.

Early childhood is no longer a moment where parents are either forced to stay at home to take care of their child, for lack of available education and care institutions, or pay disproportionate sums to place their child in a privately-managed nursery designed like left luggage office for babies, with overwhelmed, under-paid and under-qualified staff.

3.2.6.1.2 Childhood (6-11 years)

Childhood is the time when the cognitive foundations of further acquisitions of competencies are set. A broad set of competencies, such as those needed to satisfy needs in a frugal way, are explicitly transmitted, beyond reading, writing and computing,. These skills include manual skills (e.g. carpentry, knitting, cooking), artistic skills (e.g. drawing, painting, music) and body skills (e.g. running, swimming, cycling). In addition, social skills are developed via explicit cooperation projects among children, and by letting ample time and space for children to play in multi-age groups, according to their own rules.

Childhood is no longer the time in life when teaching concentrates exclusively on native language and mathematics, to the detriment of anything else.

3.2.6.1.3 Teen-age (12-18 years)

Learning during teen-age is oriented towards the long-term acquisition of knowledge and competencies, in a web of well-interconnected concepts and notions.

Inter-disciplinary learning is privileged, whereby a single issue or artefact is considered from many different points of view: e.g. a production machine as a mechanical object, a software, the support for a chemical or mechanical process, an economic asset, a working station adapted to the worker's body, but also a potential source of harm, a locus of energy consumption, the result of an historical evolution and of a geographically distributed production process... Abstract knowledge (e.g. in history, mathematics, physics) is used to support arguments in informed discussions.

Education at that age also bears on the competences for inclusion in society: active and constructive participation in multi-stakeholder democratic processes, medical first aid, civil protection procedures...

Learning during teen-age is no-longer oriented towards the short-term acquisition and restitution (and oblivion) of disparate and unconnected abstract concepts and notions, taught in separate disciplinary silos to isolated individuals without any productive interaction among themselves during class.

3.2.6.1.4 Young adults (19-25 years)

Higher education is organized around homogeneous categories of professions. For each homogeneous category of professions, the courses provided form a coherent multidisciplinary whole, structured around the skills necessary for the exercise of these professions, at the start of professional life and above all to continue to learn throughout it.



Specialisation in scientific disciplines happens only late, at the level of doctoral education, for research and through research.

University teaching is no longer organised in disciplinary silos, with no consideration of the long-term professional needs of the students, and where teaching is aimed at educating further teachers and researchers in a sterile self-reproduction mode.

3.2.6.1.5 Adults

* Link: https://en.wikipedia.org/wiki/Folk_high_school

Adults can access continuous education in any field, provided by (preferably public) organisations at local level, for a modest fee, along the model of the Nordic and Germanic "folk high school".

Adults are no longer considered as unable to learn once they have completed initial education, and are no longer determined for their whole professional life by the diploma (or absence thereof) that they reached at that time.

3.2.6.1.6 Workers

All workers have a right to continuous education and learning, for a duration growing with their seniority, and which can last up to one year. A worker in continuous education keeps his/her employment contract and a fraction of his/her salary paid by public authorities. The respective contributions of the worker and of the employer to the costs of the training is defined as follows: the one who chooses its nature and timing pays more.

Workers are no longer sorted between the few with "high potential", to whom continuous education is generously paid by the company, in a self-fulfilling prophecy of rise in competence and assertiveness legitimising the access to management and leadership positions, and the many left to take care of themselves, and have to take on their holidays and on their own (often meagre) salary to pay for the training they need to maintain their (internal and external) employability.

3.2.6.2 Care

3.2.6.2.1 Healthcare

Healthcare can be seen as the maintenance of human beings, i.e. keeping them in good mental, emotional and physical condition. Healthcare is among the good provided for free by public budgets.

Like any form of maintenance, the most efficient means is prevention. The social and economic conditions of work and life in society are designed to avoid harm to human health. Early detection of diseases is implemented if (and only if) effective preventive action is available.

Diagnosis and prescription of treatments are essentially automated, using the latest results of medical research and the interpretation made by Artificial Intelligence algorithms of anonymised patients' data. The early detection, diagnosis and prescription software is a "fair software". Handling of patients when emotional interaction is involved (diagnosis of severe illness, nursing, physiotherapy, midwifery, dentistry) is performed by humans. Technical acts with no emotional interaction with patients (surgery) are performed by robots or by humans.

Healthcare is no longer a luxury good affordable only by the wealthy (who are covered by a closed, low-priced healthcare insurance system corresponding to their good living and health conditions),



while the poor are left with a high-price, low-return healthcare insurance system (because they are in the opposite situation), and must therefore pay a larger fraction of their higher healthcare costs.

Healthcare is no longer exclusively a curative process, intervening very late and often in desperate emergency situations, because people delay any medical treatment as much as possible, for cost reasons.

3.2.6.2.2 Care of infants and children

In a household, both men and women have time free from their professional obligations so as to take care of children and infants when the educational system ends its work (evenings, week-ends, holidays). They also have time during normal office hours to fulfil their duty to contribute in the education of children, alongside education professionals.

Care of children and infants is no longer a burden relying essentially on women, causing them to interrupt or to neglect their professional careers, thereby accumulating an irrecoverable pay and career gap with men.

Men and women no longer see their children only late in the evening, after long days of work and commuting for them, and a fragile chain of school and custody solutions for their children.

3.2.6.2.3 Care of elderly people

Senior citizens continue working until a late age – at a reduced pace and level of requirement, and for a shorter duration per week, according to their age and physical and mental condition. This activity maintains them in contact with society and improves their condition.

When however elderly people have lost their autonomy, they are provided with care for free. This care is performed by humans or by robots (according to the elderly person's preference), primarily at home, and then in dedicated homes.

Senior citizens no longer are thrown out of intense work overnight upon their retirement, and no longer need many years of mild depression to find replacement activities that are meaningful to them.

When elderly people have lost their autonomy, they are no longer obliged to expend all their savings to pay for an under-staffed home where they get abused by under-paid and under-qualified carers.

3.2.7 Transforming society

Public policies, and more generally transformations of society, are designed and tested using methods inspired by engineering:

1. the issue / problem to solve is identified;
2. based on existing knowledge, hypotheses are developed regarding potential cause(s) of the issue / problem;
3. comparative experiments are implemented to validate either hypothesis;
4. once the cause(s) are identified, policies are designed to address the cause(s) of the problem / issue;



5. the planned policies are digitally simulated and pilot tested;
6. once the policies are validated by simulation and piloting, they are deployed at large scale.

Public policies, and more generally transformations of society, are no longer the realm of ideological conflicts between equally irrelevant and equally simplistic views of humans and of society. Public policies are no longer the area where politicians apply their pet projects, with no consideration for empirical validation.

3.2.8 Controlling compliance

Material and immaterial goods and the transformation processes that generate them must comply with detailed regulations to ensure that they cause no harm to humans, society or the environment, and that they preserve resources.

A well-equipped and well-staffed market surveillance and customs authority, unified at the scale of the European Union, verifies the compliance of goods with legal requirements. It can be supported in the collection of evidence by advocacy organisations and by whistle-blowers in companies or organisations.

The verification of the compliance of goods with legal requirements in the Internal Market of the European Union (on health & safety, on environmental protection) is no longer performed by a fragmented zoo of more than 500 under-staffed, under-equipped, incoherent and conflicting public authorities, which all have a vested interest in not sanctioning their own local / national companies (who would then cause local people to lose their employment), even if it causes harm to people and to the environment, and unfair competition (and thus unemployment) to law-abiding companies in other jurisdictions.

3.3 Managing waste

Any activity by live beings generates waste – there is no such thing as a "zero waste" society. We can however make sure that the flow of waste is minimal, and that the disposal of this waste when it happens is made in a way respectful of the regeneration capacities of our natural environment.

The waste flows of our consumption (including all intermediate waste generated along the supply chain) no longer exceed the regenerating capacities of our environment, and no longer accumulate in landfills or in the oceans.

Chemical residues no longer accumulate in our environment and in animals along the food chain.

The biological value of waste from living beings is no longer lost for the regeneration of the soil by being incinerated or dumped into landfills. Low-temperature heat is no longer lost by being simply dispersed in the air or in water.

3.3.1 Used water and human excretions

* Link: https://en.wikipedia.org/wiki/Wastewater_treatment

Used water from washing persons, cooking utensils, garment and homes, as well as human excretions, are disposed of via the sewage network, processed in wastewater treatment facilities, and the resulting chemically- and bacteriologically-safe sewage sludge is re-used in agriculture, with enhanced recovery of phosphate.



Industrial wastewater is treated separately, essentially in in-house facilities.

3.3.2 Food leftovers

* Link: <https://en.wikipedia.org/wiki/Compost>

Vegetable and mineral food leftovers (e.g. fruit stones and seeds, carrot leaves, egg shells) are composted.

Animal food leftovers (e.g. fat, skin, bones) are incinerated or buried.

3.3.3 Contaminated biological waste

Contaminated biological waste, e.g. from hospitals or medical treatments, is incinerated.

3.3.4 Material objects no longer usable

Materials objects that fall out of the normal, eternal recycling process, e.g. because of accidental contamination or destruction, are subject to a final dis-assembly, and their constituents are used in a lower-grade cycle, or simply as low-grade construction material.

3.3.5 Heat

Residual, low-temperature heat from homes, network infrastructures and industrial installations is used locally in greenhouses for urban agriculture or in closed reactors for algae to capture carbon dioxide.