

# WILL TECHNOLOGICAL DEVELOPMENT LEAD TO AUTHORITARIANISM?

On the Necessity of *Bildung*

*Lene Rachel Andersen*

Technological development is revamping the way that we produce and, consequently, the economic, societal, and power structures and what it means to be human. We are undergoing a transformation from nation-state-based industrialized economies to one global digitized economy where artificial intelligence, surveillance technologies and big data analysis will be capable of monitoring and manipulating us constantly. Science fiction often portrays the future as authoritarian, with power and technological control concentrated in few hands; empirical data points towards that very development as well. Psychological analyses by Erich Fromm suggest that rather than standing up to this development, humans will unintentionally drift towards authoritarianism and endorse their own oppression. The writings of Friedrich Schiller and Johann Heinrich Pestalozzi, however, point out that we do have an alternative: we can take our fate into our own hands and choose what kind of future we want. Søren Kierkegaard's Existentialism and current developmental psychology support this view. We have to act fast, though, and radically upgrade our educational systems, public discourse and understanding of *Bildung* in order not to become slaves of our own inventions.

## 1 TECHNOLOGICAL DEVELOPMENT: OUR CHALLENGE AND BIG CHANCE

With no other regulating force than the market, a number of new technologies will be revamping the world as we know it. If we decide to regulate the development wisely, we can create freedom and prosperity for all. Bio-, info-, nano-, and cognitive (BINC) technologies are merging at the nanoscale, which in combination with 3D printers will soon allow us to turn physical goods into code that can be transferred via the Internet and printed out on the other side of the globe at the push of a button. This requires 3D printers that do not exist yet, but the technology that allows printing atom by atom is in the pipeline (3Dprint.com 2018a).

Some of these printed-out items will be nano-devices that collaborate with human protein, others will be intelligent prostheses that can collaborate with our nervous system and can be integrated into our bodies (3Dprint.com 2018b). These kinds of technology already exist or have been invented, they are just not widely

available yet as printed products. Artificial intelligence (AI) and robots are already about to take over not just menial analysis of big data and routine physical tasks but will also replace chauffeurs and perform a number of tasks today performed by lawyers, doctors, journalists, and other academics (Andersen/Rasmussen 2015; Simon 2017; Future of Life Institute 2018).

Digital currencies will compete with national or continental currencies and the strength of a currency will no longer depend on the nation-state (or another kind of political entity) or the economy to back it, but rather on the ingenuity of the app delivering it. Nation-states will be competing over their sovereignty by employing app development (Mourdoukoutas 2017).

Blockchain is a software developed as part of Bitcoin, which holds great promise for logging the history of products, data and people (Rosenberg 2015; Miller 2017; Stockton 2017). The latter may in fact be a great advantage since it allows people in developing countries or failed states, and refugees or others who have lost everything, to prove their existence. The Internet of Things (IoT) will allow all human-made products to be online, blockchained and traceable (Burrus 2014). Surveillance technologies will be a combination of the above; some of them will be integrated into insects that will be remote-controlled and indistinguishable from non-modified, natural insects such as flies (Anthes 2013a; Anthes 2013b). It is impossible to put dates of availability on new technologies, but for prediction, consider that the smartphones that we carry in our pockets today have vastly more data-processing capacity than the computers taking Apollo 11 to the Moon and back in 1969.

## 2 HOW TECHNOLOGIES CHANGE THE ECONOMIC STRUCTURE

We are in a transition from nation-based industrialization to global digitization. As the means of production change, so do ownership and the economy. There are several phenomena that are already changing as our economies are becoming increasingly digitized; five of these shall be explored briefly:

- Lack of geographic gravity for products: home market economy vs. global market economy,
- the ratio of people to creation of market value,
- lack of geographic gravity for the company,
- concentration of ownership and power, and
- border-crossing immateriality dismantling our current macro-economic models.

*Lack of geographic gravity for products: home market economy vs. global market economy:* Physical products have geographical gravity, that is, they need physical transportation, and home-markets are easier to penetrate than any market beyond state borders. Digital products turn global the moment they are released on the Internet, particularly if they exist in English.

*Ratio of people to creation of market value:* Though industrialization historically meant higher productivity compared to craftsmanship, industrial (value) production was still employment-heavy. It needed lots of workers and employees. With

digital products, even a small number of people can create high production value in the global market. The sales and market values of two companies, one traditional-industrial, Volvo, the other digital, Mojang, creators of online game Minecraft, may serve as a telling example: In 2010, the Swedish company producing Volvo cars was sold to the Chinese company Geely (Yan/Leung 2010); in 2014, Mojang, also Swedish, was sold to US software giant Microsoft (Stuart/Hern 2014). These are the key indicators:

Volvo (automotive industry)	Mojang (gaming software industry)
<ul style="list-style-type: none"> <li>– Founded 1927</li> <li>– Bought by Geely 2010</li> <li>– Sales tag: 1.5 billion USD</li> <li>– Employees: 23,000</li> </ul>	<ul style="list-style-type: none"> <li>– Founded 2010</li> <li>– Bought by Microsoft 2014</li> <li>– Sales tag: 2.5 billion USD</li> <li>– Employees: 40</li> </ul>

Tab. 1: Basic business figures of Volvo and Mojang

The market value represented by the 40 Mojang employees was higher, within four years after the company's foundation, than the market value represented by some 23,000 industry workers and engineers at Volvo, some 80 years after starting business operations.

*Lack of geographic gravity for the company:* In stark contrast to a car factory, which is very complicated to move geographically, a software company with some 40 people can move from one country and tax system to another rather quickly. In fact, the employees need not be in the same country at all, and the owners do not have to be located physically in the tax haven to where the company can quickly move its home address. People who create immense economic value can move it around globally within weeks.

*Concentration of ownership and power:* Not only, in the example above, did 40 people (plus very likely some who were no longer with the company when it was sold) create more market value in a period of just four years than 23,000 people and generations of earlier colleagues had created in 83 years; in many startups the company itself has become the product. When Volvo was founded, the cars were the product; to many entrepreneurs today, what the company produces is not the focal point of their business – rather, it is selling the company that brings in the profit. Companies such as Microsoft, Alphabet (Google), Facebook and a handful of other similar-sized corporations buy up competitors and startups like Mojang, thereby amass an immense power over the Internet and create structural and economic hegemonies in cyberspace. Since the Internet and online content are mostly regulated by national and/or European Union legislation, there is no global regulation of the Worldwide Web, the Net economy and the creation of Internet and Internet-enhanced economic monopolies and super-powers.

*Dismantling of our current macro-economic models:* The macro-economic models currently in use have developed from, and are based on, the industrialized economy, nation-states and an assumption of limited resources. These models gene-

rally do not include measuring the value added to the economy by recycling and/or cradle-to-cradle design and other circular subsystems in the economy; they just measure output, not the robustness, self-support, longevity and stability of the system. The power and significance of the nation-state is drastically diminished regarding digital products since these can be downloaded worldwide. Nation-states can limit access to certain websites, but turning the Worldwide Web into national intranets would harm any local economy doing so and detach it from the development of the digital economy. Only a big and growing national economy like China's can afford restricting global Internet access (by way of dictatorial one-party rule), and can do so probably for only a relatively short time.

Recycling gets an entirely new dimension and potential economic impact when at some point we can dismantle physical products and recycle them as raw materials in 3D printers. If, on top of that, the dismantlers and the printers can run on renewable energy, then we will have created a path to unlimited abundance. It is unlikely that we reach a situation where absolutely everything can be dismantled and recycled by 3D printing machinery running on renewable energy and thus allow us to consume in unlimited mode, but even getting halfway there, or just 20 per cent of the way, would be a radical game-changer in our economies.

The bottom-line is that our macro-economic toolbox currently contains no vocabulary or measurements for progress towards a global economy based on such technologies of the future or for the recycling loops that already exist and ought to be more visible in our macro-economic bookkeeping. The national budgets, macro-economic models, and accounting do not support environmental sustainability and our economic models thus force us to think along outdated and obsolete patterns. As the technological development continues nevertheless, current macro-economics are not able to give us an accurate picture of what is happening to our economy. The technological development is tearing the economic fabric apart without us knowing exactly how and at what pace.

### 3 ARTIFICIAL INTELLIGENCE, SURVEILLANCE TECHNOLOGIES AND BIG DATA ANALYSIS

While the nation-states that currently serve as guardians of the rule of law, human rights, political and other freedoms, are being side-railed by technological and economic development, the technologies themselves seem to offer the controlling mechanisms making up for the real loss of national/state control and sovereignty if we design them properly.

Artificial intelligence, facial recognition software, surveillance technologies, big data analysis, and whatever we do on social media, search for on the Internet, etc., can be combined to be constantly monitoring and manipulating us. We can be nudged, fooled and/or coerced to vote or behave in certain ways, as recent scandals have shown. We can be monitored and manipulated by private companies as well as by our governments, but the algorithms themselves remain the proprietary possession of those private companies. As citizens, we have no democratic control over

these processes, nor do we have access to see what these companies and their algorithms do. Governments buying such services may have no knowledge about their true mechanisms either.

The Chinese government, so far, seems to be the one major exception, but not for the better. The People's Republic of China has developed its own total surveillance system of "sesame credits" that is being implemented step by step (see Hatton 2015; Kastner 2016; Creemers 2018; Munro 2018). It is a gamified social-media-cum-dating-service-cum-surveillance-tool that ranks the Chinese according to behavior, work performance, conformity of opinion/avoidance of dissent, and whom one is associated with. If you have the wrong friends, eat the wrong food, get into financial debt, walk across a red light, or vent your frustration, you will lose points (and will probably not be able to buy railway tickets to visit relatives, for example). If you do voluntary local community work, or otherwise present yourself as a good citizen, you will gain points (and make yourself eligible for a better apartment, or a passport). The system will eventually include cameras all over the country and facial recognition software that knows the face of every individual Chinese. This is state-directed social ostracizing of whoever does not comply with government rules. Of course, no blood gets spilled, no direct violence is exerted, no police officers carry you away at night as in traditional notions of what constitutes a dictatorship – it's just algorithms, a plummeting score and a life with no friends that coerce you into being an obedient, compliant citizen.

#### 4 TOTALITARIANISM AND AUTHORITARIANISM – THE ACCURACY OF SCIENCE-FICTION DYSTOPIAS

Since Fritz Lang's movie *METROPOLIS* (1927), Western civilization has not been lacking in dystopian fictions about totalitarian authoritarian futures. From a dramaturgical perspective, it makes plenty of sense to have the totalitarian authoritarian system as the antagonist while the protagonist is a freedom-loving individual(ist); it makes for good entertainment, particularly as the main characters obtain freedom towards the end of the story. The catharsis and sense of hope contained in such stories feels good to the audience.

The question is if there are reasons to take these dystopian predictions as more than just entertainment. Are there mechanisms based on technological development that pull us towards totalitarian authoritarian dystopias and, if so, will we stand up to the development? Or, phrased differently: are we drifting towards totalitarianism collectively in the "outer" world and towards authoritarianism in the individual, emotional, inner world?

Let us assess the societal developments that may draw us, collectively speaking, towards totalitarianism. Individual greed and hunger for power aside, it seems that at least two factors or structural mechanisms pull us towards power concentration and totalitarianism: scale-free networks and business monopolies.

Systems where entities interact can be characterized as networks and the individual entities as nodes. The way the nodes connect is rarely random but follows a

pattern. Self-organizing, open, complex systems tend to develop a scale-free network structure where a few nodes become hubs. The hubs that already have the most connections keep attracting the most new connections (Barabási 2013; Wolfram MathWorld 2018). Thus the main feature distinguishing scale-free networks from random networks is that the distribution of connections between any two nodes in the network follows a power law: one or very few hubs have an extremely high number of connections while the vast majority of nodes have only one or very few connections (Konno 2010). In random networks, the distribution of connections per node follows a normal distribution (see Fig. 1).

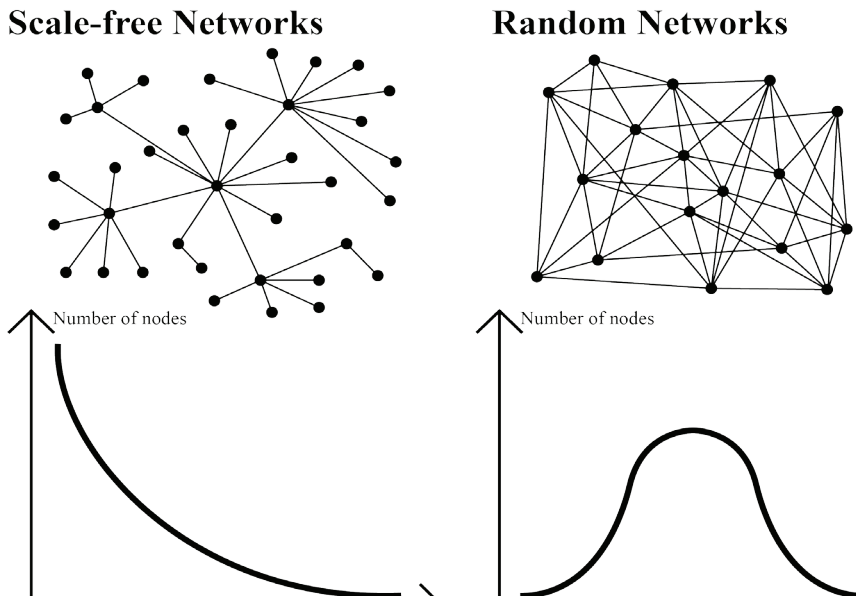


Fig. 1: Scale-free networks vs. random networks and their respective distribution of connectivity

Not only does the Internet itself have scale-free network properties with giants such as Google and Facebook being Internet hubs, the economy created by the Internet reflects the structure as such, as does any unregulated market economy: they drift towards monopolies.

Could there be a global Internet-based economic and content monopoly that would *not* become totalitarian in its attempt to protect itself? Since the Internet is too young for the world to have experienced the development of any real online monopoly, any answer to that question will be speculative. Likewise, any answers as to what the developmental phases of such a monopoly would look like remain in the realm of speculation just the same. The most likely outcome would be that a monopoly would go at great lengths to prevent competition and would thus pursue any means of protecting the monopoly. This does not itself imply that it would be violent or abusive, just that it would be totally dominating.

In *Escape from Freedom*, first published 1941, Erich Fromm explores how the economic upheavals in the Renaissance and throughout the 1930s lead to not just authoritarian rule in Germany (in the form of Protestantism and Nazism, respectively), but to people developing an authoritarian character (Fromm 1994). As technologies and the economy fundamentally changed and people could no longer provide for themselves and their family based on their existing knowledge and skills, not only did people fear for their economic future and livelihood, the symbols of the old and known world did not suffice anymore and the shared epistemology broke down. This had a deep psychological impact as people suffered from what Fromm (1994: 17–18) calls moral aloneness:

To feel completely alone and isolated leads to mental disintegration just as physical starvation leads to death. [...] This lack of relatedness to values, symbols, patterns, we may call moral aloneness and state that moral aloneness is as intolerable as the physical aloneness, or rather that physical aloneness becomes unbearable only if it implies also moral aloneness.

According to Fromm, in order to avoid this horrible feeling, people fell for authoritarian leadership and developed an authoritarian character. As they could no longer navigate their world based on internalized norms and symbols, they went looking for orders from the outside while competing fiercely among each other in order not to sink to the bottom of society. Consequently, social cohesion, trust and loyalty across society broke down, and under these conditions, any kind of weakness would not be tolerated: only strength and power would be perceived as deserving respect – the cornerstones of fascism.

According to Fromm, a breakdown of the known economic fabric thus leads to a breakdown of the moral fabric as well. Rather than standing up to power and abuse of power, the majority will succumb to it in a search for security, predictability, and a symbolic world providing a minimum of familiarity. People will endorse their own oppression.

## 5 ALTERNATIVES TO TOTALITARIAN AUTHORITARIANISM

In general, healthy adults neither develop an authoritarian character nor do they long for taking orders from others. After having internalized the norms of society and thus having learned to function productively in our community, we rather tend to develop our own sense of inner, personal authority and become self-authoring. This kind of personal development has been described by, among others, Friedrich Schiller, Johann Heinrich Pestalozzi, Søren Kierkegaard, and Robert Kegan.

*Friedrich Schiller – Aesthetic Upbringing:* When the French Revolution broke out it sent a wave of hope of political freedom through the bourgeoisie across feudal Europe. When the bloodbath followed, the majority of the Revolution's adherents were appalled and disillusioned: how could this have happened! The French gave themselves freedom and then it ended in tyranny. Friedrich Schiller was among the German intellectuals who struggled with the bloody outcome of the Revolution and in 1792–96 he wrote what is today known as *Über die ästhetische Erziehung des Menschen* (*On the Aesthetic Education of Man*; Schiller 2016). He reaches the con-

clusion that the adult *Mensch* can go through three stages of development, which Schiller gives a couple of different names (listed below). In order to lift us from one phase to the next, beauty/aesthetics can lift us and pull the rug away from under our feet so that we have to evolve, and Schiller distinguishes between calming beauty and invigorating beauty:

Phase 1:	Savage, emotional, physical man, man of nature (calming beauty is needed to lift us)
Phase 2:	Barbarian, rational man dominated by rules and fashion, man of artifice (invigorating beauty is needed to lift us)
Phase 3:	<i>Gebildet</i> and moral man who is a personality

Tab. 2: Schiller's three phases of Aesthetic Education

According to Schiller, neither emotional/physical man nor the rational man can handle political freedom: only the moral man of *Bildung* can control his own emotions and put himself beyond the mood of the crowd, and thus think for himself. He is the only person who can handle political freedom and not turn it into a bloodbath.

*Johann Heinrich Pestalozzi – Human Development:* At about the same time as Schiller was writing on aesthetic *Bildung*, the Swiss pedagogue Johann Heinrich Pestalozzi authored *Meine Nachforschungen über den Gang der Natur in der Entwicklung des Menschengeschlechts (My Enquiries into the Course of Nature in the Development of the Human Species)*, which was published in 1797. Across some 150 pages, he describes three stages of adult maturity: *tierischer Zustand*, *gesellschaftlicher Zustand* and *sittlicher Zustand* (animalistic condition, societal condition and moral condition; see Pestalozzi 1797). The societal condition he also calls *bürgerliche Bildung*, civic *Bildung*. The way he describes these conditions, they very much overlap with Schiller's first two conditions (emotional and rational man) and his moral condition. Pestalozzi (1797: ch. 11; my translation) sums it up as follows:

By the work of my nature, I am physical power, an animal.  
 By the work of my family, I am social power, skill.  
 By the work of myself, I am moral power, virtue.

Pestalozzi does not link any of the stages specifically to politics, but it is obvious that only the moral condition leaves people with the ability to control their emotions and stand up to the crowd.

Both Schiller and Pestalozzi knew German pedagogue/philosopher Johann Gottlieb Fichte who also wrote about adult development in stages, as did several other German Idealists at the time, but neither Schiller nor Pestalozzi refer to one another or to other contemporary thinkers in their two cited works.

*Søren Kierkegaard – Stages on Life's Way:* In his seminal work *Either-Or (Enten-Eller)*, orig. 1843), Danish philosopher Søren Kierkegaard (1962a) explores five existential stages of development, which he personifies in five characters:



- The *Petit Bourgeois* is a man controlled by the norms of society and the expectations of others.
- The *Aesthetic* would like to be more existentially advanced than the *Petit Bourgeois* but cannot emancipate himself from the judgment of others.
- The *Ethic* has discovered the existence of the personal moral choice, and once one has seen this choice, one must also choose it; one cannot be morally aware and ignore it. One can try ignoring it, but eventually, one must choose it.
- The *Ironic* refers to Kierkegaard's previously explored concept of irony as presented in his doctoral thesis, *On the Concept of Irony with Continual Reference to Socrates (Om Begrebet Ironi med stadigt Hensyn til Socrates)*, in 1841 (1962b): showing how something is not of any worth. The *Ironic* thus lives in an existential limbo where nothing really matters.
- The Religious person accepts to let go of human control and hovering at 70,000 fathoms.

To Kierkegaard, the conscious existential choice takes place between the *Aesthetic* and the *Ethic*: that is where we choose who we are. It is a moral and existential choice and it is thus an act of moral will that lifts us to the next stage.

*Robert Kegan – Ego-development*: According to American developmental psychologist Robert Kegan, ego-development happens in five stages (see Kegan 1982; Kegan 1994; Kegan/Lahey 2009):

<b>Stage 1</b> Age 2–6 Self-discovering*	<b>Stage 2</b> Age 6–teen Self-consolidating*	<b>Stage 3</b> Teen and adult Self-governing	<b>Stage 4</b> Adults Self-authoring	<b>Stage 5</b> Adults Self-transforming
Authority outside	Authority outside	Internalized norms	Own norms	Mutuality
Needs boundaries	Needs boundaries Searches for group	Conformity Group above principles	Has ideals and values Principles above group	Renewing norms Sees the full picture incl. self
Jumbled thinking	Concrete thinking	Simple abstractions	Abstract thinking	Holistic thinking
The child is had by her impulses	The child is had by her emotions	The person is had by her ideals and values	Had by personal autonomy	Sees the process and “goes tai chi”

Tab. 3: Stages of ego-development (based on Kegan 1982, 1994, 2009)

\* Terms not used by Kegan

Between each two stages of mental complexity, there is a phase of transition until the individual has settled into the new mode of being. This phase can be highly frustrating and is often painful: either because one has to let go of previous habits

and assumptions, or because previous assumptions turn out to be false and one goes through a personal crisis as a result.

Kegan's fifth stage of mental complexity, "Self-transforming", is hardest to describe, but most grandparents know it within the family: one can see the psychological and other mechanisms at play among the individual members of the family and one can also see how one affects those dynamics oneself, either by interfering or by staying out of it. It is a consciousness that allows one to "go tai chi" – i.e., to see the dynamics that are already there and use them for the good of the situation (instead of fighting them).

According to Andersen/Björkman (2017: 136, 454), Kegan's five stages of ego-development match the stages of *Bildung* as described by Schiller, Pestalozzi and Kierkegaard in the following ways:

- Kegan, mental complexity stage 1: early childhood, ages 2 to 6
  - Andersen/Björkman: self-discovering
  - Schiller: no mentioning
  - Pestalozzi: no mentioning
  - Kierkegaard: no mentioning
    - Kegan: transition phase (no name)
- Kegan, mental complexity stage 2: late childhood, age 6 to teenage years
  - Andersen/Björkman: self-consolidating
  - Schiller: emotional man
  - Pestalozzi: animal condition
  - Kierkegaard: no mentioning
    - Kegan: transition phase (no name)
    - Schiller: calming beauty
    - Pestalozzi: benefits of society attract us
- Kegan, mental complexity stage 3: self-governing/socialized mind, teenage years and adulthood
  - Andersen/Björkman: self-governing (same as Kegan)
  - Schiller: rational man
  - Pestalozzi: societal condition
  - Kierkegaard: Petit Bourgeois
    - Kegan: transition phase (no name)
    - Schiller: invigorating beauty
    - Pestalozzi: by willpower can we change ourselves
    - Kierkegaard: the Aesthetic
- Kegan, mental complexity stage 4: self-authoring mind, adulthood
  - Andersen/Björkman: self-authoring (same as Kegan)
  - Schiller: moral man
  - Pestalozzi: moral condition
  - Kierkegaard: Ethic
    - Kegan: transition phase (no name)
    - Kierkegaard: the Ironic
- Kegan, mental complexity stage 5: self-transforming mind, adulthood
  - Andersen/Björkman: self-transforming (same as Kegan)

- Schiller: has a description of the mature mind that can handle constant change without dissolving due to it
- Pestalozzi: does not have a stage matching it
- Kierkegaard: his Religious stage does not quite match it; Schiller's very short mentioning is closer to Kegan's description than Kierkegaard's, which is dependent on Christian dogma

Some of the transition phases, which Kegan describes as frustrating or painful, Schiller suggests can be promoted by aesthetics/beauty: the intermittent stage between Kegan's stages 2 and 3 and stages 3 and 4. Pestalozzi does not deal with the transitions, except that he sees the entirety of stage 3/societal condition as an unstable state where the individual is not in touch with his own emotions. Kierkegaard is the only one who names two of the transition phases and explores them extensively: the Aesthetic and Ironic stages, and it is obvious that they are not stages in which one can live a fully satisfying life; they carry each their own frustration and lack of fulfillment. By making the Ethic stage a conscious choice, Kierkegaard aligns himself with Pestalozzi.

## 6 EGO-DEVELOPMENT AND POLITICAL RESPONSIBILITY

By bringing the four descriptions of personal development together, Andersen/Björkman (2017: 421) first conclude that according to Schiller, one has to be at least self-authoring in order to handle political freedom, second that the self-consolidating stage corresponds with Fromm's authoritarian character and that during societal upheaval, the self-governing character will regress to an authoritarian one which will in turn undermine democracy. The authors sum up the interplay of personal development and political responsibility along the lines of the following model:

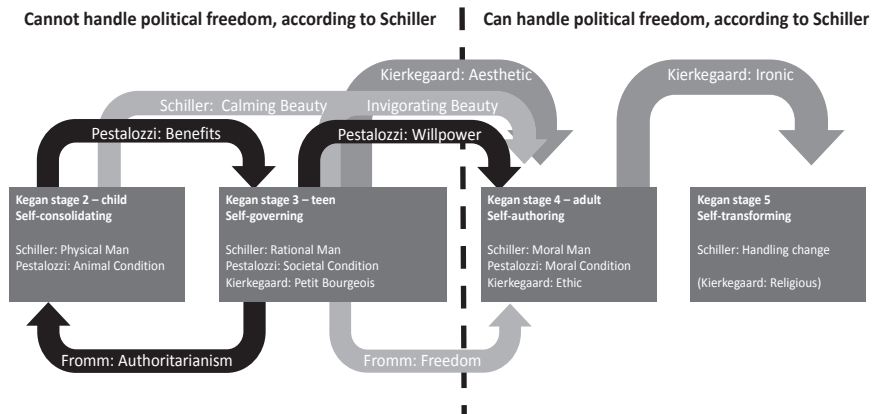


Fig. 2: Stages of personal development and political responsibility – an overview

As self-consolidating/emotional man/animal condition, one is in the throes of one's passions and cannot be responsible beyond short-term desires. As self-governing/

rational man/societal condition, one conforms to the expectations of others and cannot take an individual stand. In either case, one is not existentially free to vote or act independently and take a stand on behalf of society as a whole; one can be swept away by collective passions, which is what happened to the crowd during the French Revolution.

In an established democracy, as the known fabric of society breaks down and the epistemology becomes increasingly insufficient and leaves a growing number of people morally alone, those people previously in a self-governing stage will become increasingly self-consolidating and unable to collaborate for the greater good of society. Having so far navigated according to internalized collective norms rather than according to an individual personal moral compass, they have only their emotions left to fall back on as the collective epistemology and its symbols disintegrate and fail them. Any promise of restoring order and societal cohesion will sound promising and soothing, and the self-governing turned self-consolidating will hail an authoritarian leader's call for strength, righteous suffering, eradication of the weaker, and the persecution of any convenient scapegoat minority.

## 7 CONCLUSION

Our economy is revamping due to technological development. Under such circumstances, the existing collective epistemology becomes insufficient and is at risk of breaking down. We need new forms of *Bildung* to tackle this. *Bildung* is more than education; it is personal development, which has been described in philosophical, pedagogical and psychological terms in the wake of the German Idealists. This means that in the Western academic tradition, we have had some 250 years of descriptions of adult psychological development that matches across time.

Based on Fromm's analysis of the mechanisms leading to the development of an authoritarian character that infuses a population during economic upheaval, there is reason to believe that the current structural changes in the economy due to technological development (digitization et al.) will lead to authoritarianism. The craving for authoritarian leadership due to economic upheaval will be enforced by the technologies that are currently being developed, as they are themselves making totalitarian surveillance and control easier and more efficient than ever.

The path away from authoritarianism goes through *Bildung* that allows individuals to become self-authoring, i.e., develop a personal, inner, independent, individual moral compass. *Bildung* of this type is obviously rooted in ethics.

In order to avoid totalitarian authoritarianism in the face of a revamping of our means of production and the economy, we need to develop new symbols and individual and collective understandings of what is going on, i.e., a new epistemology, so that people do not feel morally alone in the face of changes and upheavals. We also need to develop the individual and collective moral courage among leaders who can take the development in a direction that is meaningful to people so that they do not feel lost in the first place. These two demands go together.

At the collective level, as a species, becoming self-authoring is the only path that allows us to choose which technologies to develop and implement rather than seeing the technological development and the resulting economic and political development as something “inevitable” or “without alternatives”.

## BIBLIOGRAFIE

- Andersen, Lene Rachel/Rasmussen, Steen (2015): Tomorrow’s Technology Will Lead to Sweeping Changes in Society – It Must, For All Our Sakes. In: *The Conversation*, 12 February. Online: <https://theconversation.com/tomorrows-technology-will-lead-to-sweeping-changes-in-society-it-must-for-all-our-sakes-36023?sa=google&sq=binc&sr=1> (accessed 6 July, 2018).
- Andersen, Lene Rachel/Björkman, Tomas (2017): *The Nordic Secret: A European Story of Beauty and Freedom*. Stockholm: Fri Tanke Förlag.
- Anthes, Emily (2013a): The Race to Create ‘Insect Cyborgs’. In: *The Observer/The Guardian Online*, 17 February. Online: <https://www.theguardian.com/science/2013/feb/17/race-to-create-insect-cyborgs> (accessed 6 July, 2018).
- Anthes, Emily (2013b): Frankenstein’s Cat: Cuddling Up to Biotech’s Brave New Beasts. New York: Scientific American/Farrar, Straus & Giroux.
- Barabási, Albert-László (2003): *Linked: How Everything Is Connected to Everything Else and What It Means for Business, Science, and Everyday Life*. New York: Plume.
- Burrows, Daniel (2014): The Internet of Things Is Far Bigger Than Anyone Realizes. In: *Wired.com*, November 2014. Online: <https://www.wired.com/insights/2014/11/the-internet-of-things-bigger/> (accessed 6 July, 2018).
- Creemers, Rogier (2018): China’s Social Credit System: An Evolving Practice of Control. In: *Social Science Research Network, SSRN.com*, 22 May. Online: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=3175792](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3175792) (accessed 6 July, 2018).
- Fromm, Erich (1994): *Escape from Freedom*. New York: Holt (originally published in 1941).
- Future of Life Institute (2018): Benefits and Risks of Artificial Intelligence. Online: <https://futureoflife.org/background/benefits-risks-of-artificial-intelligence/> (accessed 6 July, 2018).
- Hatton, Celia (2015): China ‘Social Credit’: Beijing Sets Up Huge System. In: *BBC News*, 26 October. Online: <https://www.bbc.com/news/world-asia-china-34592186> (accessed 6 July, 2018).
- Kastner, Laura (2016): „Sesame-Credits“ – Macht China Überwachung zum Spiel? In: *Politik-digital.de*, 26 January. Online: <https://politik-digital.de/news/sesame-credits-china-ueberwachung-148275/> (accessed 6 July, 2018).
- Kegan, Robert (1982): *The Evolving Self: Problem and Process in Human Development*. Cambridge, MA: Harvard University Press.
- Kegan, Robert (1994): *In Over Our Heads: The Mental Demands of Modern Life*. Cambridge, MA: Harvard University Press.
- Kegan, Robert/Lahey, Lisa Laskow (2009): *Immunity to Change: How to Overcome It and Unlock Potential in Yourself and Your Organization*. Boston, MA: Harvard Business Press.
- Kierkegaard, Søren (1962a): *Enten-Eller*. Vols. 1 & 2 (Samlede værker, Vols. 2 & 3). København: Gyldendal (originally published in 1843).
- Kierkegaard, Søren (1962b): *Om Begrebet Ironi med stadigt Hensyn til Socrates*. (Samlede værker, Vol. 1). København: Gyldendal (originally published in 1841).
- Konno, Tomohiko (2010): Imperfect Competition on Scale-Free Networks: Modern Monopolistic Competition. In: *Social Science Research Network, SSRN.com*, 26 February. Online: [https://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=1558925](https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1558925) (accessed 6 July, 2018).
- Miller, Ron (2017): The Promise of Managing Identity on the Blockchain. In: *TechCrunch.com*, 10

- September. Online: <https://techcrunch.com/2017/09/10/the-promise-of-managing-identity-on-the-blockchain/> (accessed 6 July, 2018).
- Mourdoukoutas, Panos (2017): Why China Crushed Bitcoin. In: Forbes.com, 9 September. Online: <https://www.forbes.com/sites/panosmourdoukoutas/2017/09/09/why-china-crushed-bitcoin/#5084d90e29ef> (accessed 6 July, 2018).
- Munro, Kelsey (2018): China's Social Credit System 'Could Interfere in Other Nations' Sovereignty'. In: The Guardian Online, 27 June. Online: <https://www.theguardian.com/world/2018/jun/28/chinas-social-credit-system-could-interfere-in-other-nations-sovereignty> (accessed 6 July, 2018).
- Pestalozzi, Johann Heinrich (1797): *Meine Nachforschungen über den Gang der Natur in der Entwicklung des Menschengeschlechts*. Zürich: Gefner.
- Rosenberg, Scott (2015): How Bitcoin's Blockchain Could Power an Alternate Internet. In: Wired.com, 13 January. Online: <https://www.wired.com/2015/01/how-bitcoins-blockchain-could-power-an-alternate-internet/> (accessed 6 July, 2018).
- Schiller, Friedrich (2016): *On the Aesthetic Education of Man: and, Letters to Prince Frederick Christian von Augustenburg* (Keith Tribe, trans.; with an Introduction and Notes by Alexander Schmidt). London: Penguin Books (originally published in 1795).
- Simon, Matt (2017): What Is a Robot? In: Wired.com, 24 August. Online: <https://www.wired.com/story/what-is-a-robot/> (accessed 6 July, 2018).
- Stockton, Nick (2017): A Curious Plan to Save the Environment With the Blockchain. In: Wired.com, 22 May. Online: <https://www.wired.com/2017/05/curious-plan-save-environment-blockchain/> (accessed 6 July, 2018).
- Stuart, Keith/Hern, Alex (2014): Minecraft Sold: Microsoft Buys Mojang for \$2.5bn. In: The Guardian Online, 15 September. Online: <https://www.theguardian.com/technology/2014/sep/15/microsoft-buys-minecraft-creator-mojang-for-25bn> (accessed 6 July, 2018).
- 3Dprint.com (2018a): Company website. Online: <https://3dprint.com/?s=nano> (accessed 6 July, 2018).
- 3Dprint.com (2018b): VTT Studying Nanocellulose and 3D Printing for Wound Care and Decoration. Online: <https://3dprint.com/188207/vtt-nanocellulose-3d-wound-care/> (accessed 6 July, 2018).
- Wolfram MathWorld (2018): Scale-Free Network. In: Wolfram.com (last updated 3 July). Online: <http://mathworld.wolfram.com/Scale-FreeNetwork.html> (accessed 6 July, 2018).
- Yan, Fang/Leung, Alison (2010). China's Geely Completes Volvo Buy. In: Reuters.com, 2 August. Online: <https://www.reuters.com/article/us-geely/chinas-geely-completes-volvo-buy-idUSTRE66S1TC20100802> (accessed 6 July, 2018).