

# Is Society caught up in a Death Spiral? Modeling Societal Demise and its Reversal

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*Submitted to Journal:*  
Frontiers in Psychology

*Specialty Section:*  
Theoretical and Philosophical Psychology

*Article type:*  
Review Article

*Manuscript ID:*  
1194597

*Received on:*  
27 Mar 2023

*Journal website link:*  
[www.frontiersin.org](http://www.frontiersin.org)

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### *Conflict of interest statement*

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest

### *Author contribution statement*

MS played the primary role in the conception of the manuscript, writing, reviewing, and revising the manuscript. JI contributed to writing the manuscript and editing the manuscript. ML contributed to and partly wrote the section on "Differences from other concepts", crafted Table 1, contributed to writing, and editing the manuscript. All authors contributed to the article and approved the submitted version.

### *Keywords*

Death Spiral Effect, societal collapse, Income inequalities, Dysfunctional behavior, Turnaround leadership, Strengthening of Democracy, Elite and Masses

### *Abstract*

Word count: 339

Just like an army of ants caught in an ant mill, individuals, groups and even whole societies are sometimes caught up in a death spiral, a vicious cycle of self-reinforcing dysfunctional behavior characterized by continuous flawed decision making, myopic single-minded focus on one (set of) solution(s), denial, distrust, micromanagement, dogmatic thinking and learned helplessness. We propose the term Death Spiral Effect to describe this difficult to break downward spiral of societal decline. Specifically, in the current theory-building review we aim to: (1) more clearly define and describe the death spiral effect; (2) model the downward spiral of societal decline as well as an upward spiral; (3) describe how and why individuals, groups and even society at large might be caught up in a death spiral; and (4) offer a positive way forward in terms of evidence-based solutions to escape the death spiral effect. Management theory hints on the occurrence of this phenomenon and offers turn-around leadership as solution. On a societal level strengthening of democracy may be important. Prior research indicates that historically, two key factors trigger this type of societal decline: (1) rising inequalities creating an upper layer of elites and a lower layer of masses, and (2) dwindling (access to) resources. Historical key markers of societal decline are government overreach, overintegration (interdependencies in networks) and a rapidly decreasing trust in institutions and resulting collapse of legitimacy. Important issues that we aim to shed light on are the behavioral underpinnings of decline, as well as the question if and how societal decline can be reversed. We explore the extension of these theories from the company/organization level to the society level, and make use of insights from both micro-, meso-, and macro-level theories (e.g., collapsology, the study of the risks of collapse of industrial civilization) to explain this process of societal demise. Our review draws on theories such as Social Safety Theory, Conservation of Resources Theory, and management theories that describe the decline and fall of groups, companies and societies, as well as offer ways to reverse this trend.

### *Contribution to the field*

Individuals, groups and even whole societies sometimes enter a death spiral. This vicious cycle of self-reinforcing dysfunctional behavior can even lead to societal collapse if the course of action and suboptimal decision making is not corrected. Important signs of societal collapse are (a) increasing wealth and health inequalities and dwindling access to resources, resulting in (b) a widening economic and health gap between elite and masses. While the period before the Covid-19 crisis seems to be characterized by policy underreaction to complex social problems, the current times seem to be characterized by overreaction to a small set of problems. In the current narrative and theory building review we coin the term Death Spiral Effect to describe this type of overreaction and the resulting cascading effects in (health) policies. Our review, synthesizing research from several fields indicates several evidence-based solutions to reverse the decline, such as turn-around leadership and the strengthening of democracy. Ideally, public health agencies, governments, companies, all relevant stakeholders as well as individuals should collaborate toward the goals of a healthier and happier future for all.

# Is Society caught up in a Death Spiral?

## Modeling Societal Demise and its Reversal

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16 **Keywords: Death Spiral Effect, Societal Collapse, Income Inequalities, Dysfunctional**  
17 **Behavior, Elite and Masses, Turnaround Leadership, Strengthening of**  
18 **Democracy.**

19

20 **Abstract**

21 Just like an army of ants caught in an ant mill, individuals, groups and even whole societies are  
22 sometimes caught up in a death spiral, a vicious cycle of self-reinforcing dysfunctional behavior  
23 characterized by continuous flawed decision making, myopic single-minded focus on one (set of)  
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26 decline. Specifically, in the current theory-building review we aim to: (1) more clearly define and  
27 describe the death spiral effect; (2) model the downward spiral of societal decline as well as an upward  
28 spiral; (3) describe how and why individuals, groups and even society at large might be caught up in a  
29 death spiral; and (4) offer a positive way forward in terms of evidence-based solutions to escape the  
30 death spiral effect. Management theory hints on the occurrence of this phenomenon and offers *turn-*  
31 *around leadership* as solution. On a societal level *strengthening of democracy* may be important. Prior  
32 research indicates that historically, two key factors trigger this type of societal decline: (1) *rising*  
33 *inequalities* creating an upper layer of elites and a lower layer of masses, and (2) *dwindling (access to)*  
34 *resources*. Historical key markers of societal decline are government overreach, overintegration  
35 (interdependencies in networks) and a rapidly decreasing trust in institutions and resulting collapse of  
36 legitimacy. Important issues that we aim to shed light on are the behavioral underpinnings of decline,  
37 as well as the question if and how societal decline can be reversed. We explore the extension of these  
38 theories from the company/organization level to the society level, and make use of insights from both  
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41 Social Safety Theory, Conservation of Resources Theory, and management theories that describe the  
42 decline and fall of groups, companies and societies, as well as offer ways to reverse this trend.

43           **1     Introduction**

44     Ants rely on each other for survival and often hunt for prey together. They use pheromones to locate  
45     each other and they follow the ones in front of them. This usually works quite well, although sometimes  
46     the ants get locked in what is called an “ant mill” or “death spiral”. This can happen when a subset of  
47     ants gets separated from the main foraging group and begin following each other. They start forming  
48     a continuously rotating circle, and the ants caught up in this death spiral often die from exhaustion. It  
49     has even been observed that dead ants are being pushed out of the circle, while the ants maintain their  
50     rounds. This “ant mill” or “circular milling paradox” seems to be the evolutionary price that army ants  
51     pay for an otherwise successful strategy of collective foraging (Delsuc, 2003). The pathological,  
52     dysfunctional behavior is the other side of the coin of otherwise functional behavior. Rosabeth Moss  
53     Kanter, who spent years of studying declining organizations, concluded that a process similar to a death  
54     spiral may be happening to failing companies (Kanter, 2003). After years of success, these companies  
55     have trouble managing processes when the tide turns and problems occur. Instead of looking for  
56     solutions with an open mind, companies often get caught up in a death spiral, making decisions that  
57     seem rational, such as downsizing, and centralized decision making (cf. Lamberg et al., 2018, Charan  
58     et al., 2002). Often these decisions worsen the situation, instead of making it better, and self-destructive  
59     habits include denial, complacency and cost-inefficiency (Sheth, 2007). Sheth (2007) argues that denial  
60     of the new reality and internal turf wars, i.e. territorial impulse, are two dangerous self-destructive  
61     habits that can further send a company in decline. Companies are reluctant to admit they are in trouble  
62     and instead blame circumstances outside their control (Charan et al., 2002, Lorange and Nelson, 1987).  
63     Management research has also shown that long before the crisis within a company becomes apparent,  
64     the signs are there, but often go unnoticed or are ignored (Fitzgerald, 2005, Lorange and Nelson, 1987).  
65     These include for instance excess personnel, tolerance of incompetence, preference for form over  
66     substance, less clear goals and decision benchmarks, loss of effective communication, and outdated  
67     organizational structure (Lorange and Nelson, 1987). Having to address these problems down the line,  
68     often leads to taking drastic steps and overreaction that may further fuel decline (Lorange and Nelson,  
69     1987, Hafsi and Baba, 2023).

70     Using the metaphor of a corporate heart attack, Fitzgerald discerns the hidden, subtle and overt phase  
71     (Fitzgerald, 2005). In the hidden phase, denial or willful blindness often prohibits management from  
72     taking (the right) actions. Against their better judgement, they hope if they ignore it, the market will  
73     not notice. In that phase, on average a third of a company’s competitive value is lost. If a new market  
74     challenge presents itself, the company is often unable to face the challenge. In the subtle phase, the

75 decline becomes more obvious for those who are observant and know where and how to look and how  
76 to interpret what they see. By the end of this phase, often a full two-thirds of the comp(Hafsi and Baba,  
77 2023)any’s competitive value is lost. Unfortunately, many companies only start to admit and address  
78 the problem in the overt phase. By that time, the problems are so big and ingrained, that addressing  
79 them has become extremely difficult. While many managers do watch the financials, they often fail to  
80 address other metrics such as market-share trends, customer turnover and staff satisfaction. Often these  
81 drivers are the earliest predictors of corporate performance. Important blockers of performance are  
82 distrust, bureaucracy and low performance expectations, while drivers are decisiveness, accountability  
83 and acknowledgement of work. Fitzgerald concludes that it is key to identify and quantify drivers that  
84 need to be changed and to make sure that they are not ignored. Important early warning signals are for  
85 instance an excess of staff, especially managers, a decrease in lower level workers, tolerance of  
86 incompetence, replacement of substance with form, cumbersome administrative procedures, loss of  
87 effective communication and lack of clear goals (Lorange and Nelson, 1987). Reversing organizational  
88 decline starts with the realization and recognition that the organization is in decline. These danger  
89 signals should then be aligned with a concrete plan to change. A dialogue between top-down and  
90 bottom-up is needed (Lorange and Nelson, 1987). If the company is able to take those steps, follow-  
91 up monitoring is needed to make sure the changes that are proposed and made are effective (Lorange  
92 and Nelson, 1987). While in the early phases underreaction may be the problem, in later phases, the  
93 danger comes from overreaction (cf. Lai and Sudarsanam, 1997, Hafsi and Baba, 2023).

94 We believe that similar processes may happen at the societal level. On a societal level, researchers  
95 studying policy success and failure have started to investigate the role of policy under- and over-  
96 reactions (Maor, 2012, Maor, 2020). Policy overreactions are “policies that impose objective and/or  
97 perceived social costs without producing offsetting objective and/or perceived benefits.” (Maor, 2012;  
98 p. 235). For instance, preemptive overreaction is a form of policy that will often rely on persuasion by  
99 presenting “facts” in a certain way, manufacturing a perceived threat, and using messages to swing the  
100 public mood (Maor, 2012). An example is the cull of all pigs in Egypt during the swine flu crisis in  
101 2009, even though zero cases had been reported (Maor, 2012). An important explanation is that in such  
102 cases groupthink may play a role. Groupthink, the forced conformity to group values and ethics, has  
103 symptoms such as collective rationalization, belief in inherent morality, stereotyped views of  
104 outgroups, pressure on dissenters, and self-appointed mind guards (Janis, 1972, Janis, 1982a, Janis,  
105 1982b, Janis and Mann, 1977). Preemptive overreaction shows that one is taking forceful and decisive  
106 action against a perceived threat, and motives could be political and/or monetary gain (Maor, 2012).

107 While the period before the Covid-19 crisis may have been characterized by relative policy  
108 underreaction to complex social problems, also referred to as “wicked problems”, such as hunger and  
109 poverty (Head, 2022, Head, 2018), the current times may be characterized by overreaction to a small  
110 set of problems. The Covid-19 crisis seemed to be characterized by groupthink and escalation of  
111 commitment to one course of action, at the expense of other possible solutions (Schippers and Rus,  
112 2021, Joffe, 2021). Initial low quality decision-making was followed by decisions that made things  
113 worse (Schippers and Rus, 2021, Joffe, 2021). The sheer scale and severe disruption caused by these  
114 policies has increased inequalities (Schippers, 2020, Schippers et al., 2022), an important marker of  
115 societal decline (Motesharrei et al., 2014).

116 In the current narrative and theory building review we coin the term *death spiral effect* to describe this  
117 type of overreaction and the resulting cascading effects in policies and the general public. Making use  
118 of the ant mill metaphor, we theorize that a death spiral effect emerges where a society gets caught up  
119 in a dysfunctional behavioral mode. Making use of metaphors may aid theory building (Shepherd and  
120 Suddaby, 2017). We describe the elements of this vicious downward cycle, such as rising inequalities,  
121 dysfunctional behavior of both elite and masses, and rise of authoritarianism (See Figure 1 and 2). We  
122 examine how the behavioral underpinnings of the resulting toxic environment can lead to escalation  
123 through war, famine, and pandemics. While there is a rich literature on early warning signs and markers  
124 of societal decline, the underlying mechanisms have received much less attention and explanations  
125 miss the depth that the psychological and sociological and management theories may offer. We draw  
126 on theories such as collapsology – the transdisciplinary study of industrial civilization risk of collapse  
127 –, Social Safety Theory – that focuses on friendly social bonds development and maintenance –,  
128 Conservation of Resources Theory – that focuses on obtaining and maintenance of resources –, and  
129 general management theories that describe the decline of groups. We also use social dominance theory  
130 to explain how and why the resulting inequalities are hard to reverse. We then depict a possible upward  
131 spiral, with elements such as turnaround leadership, determination to break the downward spiral,  
132 development of a strategy, avoidance of blame game, enhanced autonomy of civilians, and decreased  
133 social inequalities (See Figure 3). In doing so, we contribute to theory building around the  
134 psychological and sociological drivers of societal decline (Swedberg, 2016). We end with discussion  
135 and recommendation on ways to reverse the downward spiral and to build a more free, open, and equal  
136 society where people can thrive and prosper.

## 137 **1.1 Downward spiral**

### 138 **1.1.1 Crisis and crisis handling**

139 Several authors have noted that societal decline has similar phases to organizational decline in  
140 companies, including early warning signs (Downey et al., 2016, Jones, 2021, Scheffer, 2016, Tainter,  
141 1988, Demarest and Victor, 2022). Compared to decline in organizations, however, the scale at which  
142 this happens is bigger, the social consequences are more complex, and the decline may often be a more  
143 long-term process. The average lifespan of a company in the Standard and Poor's 500 index in 2020  
144 was 21.4 years (Clark et al., 2021) while some historical empires have lasted many decades or centuries  
145 (Taagepera, 1979). The half-life of societies in the 21<sup>st</sup> century can only be speculated, but acceleration  
146 of turnover is possible, or even likely. Another difference between organizations and society is that the  
147 outcome of decline can often not be buffered by society, such as would be the case in company decline.  
148 Also the hard outcomes (which may include war, famine and widespread disease) can be extremely  
149 hard to reverse (Downey et al., 2016). These three, war, famine and pandemics, we call the "Triangle  
150 of death" (see figures 1-2), an expression coined by former Green Beret and combat correspondent  
151 Michael Yon (Yon, 2022). However, Demarest & Viktor (2022; p. 788) note that: "Even today the  
152 greatest challenge to knowledge coming from collapse studies—relevant not just for policy-makers  
153 and managers, but for the citizens of the entire society—is that no one really deeply believes that total  
154 collapse is possible."  
155 The process of societal decline is complex and may include social-ecological traps, or a mismatch  
156 between the responses of people and the social and ecological conditions they face, e.g., depletion of  
157 natural resources (Boonstra and de Boer, 2014, Boonstra et al., 2016). For the current review, we feel  
158 that the handling of the Covid-19 crisis may have been an example of overreaction making use of  
159 interventions that accelerated existing societal problems, such as inequalities (Schippers, 2020,  
160 Schippers et al., 2022). Most countries opted for very similar solutions, with forced lockdowns and  
161 aggressive restrictions (20). Countries that chose a different course of action were highly criticized  
162 (Tegnell, 2021). Many countries eventually faced excess mortality rates that were highly unequal  
163 across groups, exacerbating preexisting inequalities (Alsan et al., 2021, Schippers et al., 2022). Over-  
164 reaction was fueled by (unreliable) metrics (Schippers and Rus, 2021, Ioannidis et al., 2022) and  
165 groupthink, resulting in irrational or dysfunctional decision making (Joffe, 2021, Hafsi and Baba,  
166 2022). Furthermore, emotions during crises tend to run high, escalating the risk of harmful overreaction  
167 both by policy makers and the general public (Sunstein and Zeckhauser, 2010). Governments may  
168 suffer from an action bias, a tendency to take action whether it is needed or not, including excessive  
169 actions (Patt and Zeckhauser, 2000) despite information that the policies may do more harm than good  
170 (for reviews see Joffe and Redman, 2021, Schippers et al., 2022, Schippers and Rus, 2021).



171 Unnecessary crisis response as a form of policy overreaction may sometimes occur as a way to shape  
172 voters perceptions of a decisive and active government (Maor, 2020). Excessive action and exercise of  
173 control over societal structures, e.g. public health, may enhance centralization of power and decision-  
174 making, and authoritarianism (Schippers et al., 2022, Berberoglu, 2020, Simandan et al., 2022, Desmet,  
175 2022) When governments make use of mass media to spread negative information, a self-reinforcing  
176 cycle of nocebo effects, “mass hysteria” and policy errors can ensue (Bagus et al., 2021). This effect  
177 is exacerbated when the information comes from authoritative sources, the media are politicized, social  
178 networks make the information omnipresent (Bagus et al., 2021), and dissenting voices are silenced  
179 (Schippers et al., 2022, Shir-Raz et al., 2022). This may lead to a vicious cycle of ineffective dealing  
180 with crises, low-quality decision-making and dysfunctional behavior, intensifying the current crises  
181 and leading to new ones, and eventually societal decline and even collapse.

182 (FIGURE 1. Death Spiral Effect: Downward spiral of societies and/or groups in decline)

183 (FIGURE 2. Death spiral model of societies in decline)

184 Below we will first define and describe the process of a death spiral, and the similarities and differences  
185 between a death spiral and other concepts such as group think and mass formation. Second, we will  
186 describe the elements of a societal downward (death) spiral, e.g., low-quality decision-making, rise of  
187 authoritarianism, and dysfunctional behavior of both the elite and masses. Third, we describe the  
188 possibilities for an upward spiral, e.g. presence of a high quality turn-around leadership, restoration of  
189 trust, and development of turnaround strategy.

### 190 **1.1.2 Death spiral considerations**

191 When people encounter difficulties or trauma (or sometimes for no apparent reason), people and  
192 groups can start to make decisions that do not ensure survival, but seem self-destructive at best (cf.  
193 Balcombe and De Leo, 2021). People and groups may make decisions to cope with the situations, but  
194 these can be characterized as mal-adaptive, non-adaptive, or semi-adaptive (Marien, 2009). Attempts  
195 to escape a downward spiral sometimes make it worse, by using counterproductive coping mechanisms  
196 (e.g., Freyhofer et al., 2021). The dysfunctional behavior continues if the spiral is not broken, and  
197 decline may follow from increasingly fragmented political institutions (cf. Kreml, 1994). When the  
198 system gets a blow, for instance from financial decline, bad luck, depletion of resources, or other bad  
199 turns of fortune (Motesharrei et al., 2014), groups or societies may feel compelled to take action  
200 without considering carefully whether their decision-making process is valid (Schippers et al., 2014).

201 The threat-rigidity effect predicts a restriction in information processing and constriction of control  
202 under conditions of threat (Staw et al., 1981). The whole system becomes unstable and dysfunctional  
203 behavior sets in (Mohrman and Mohrman Jr., 1983). The environment becomes generally stressful and  
204 threatening, eliciting more and more self-protective and rigid behaviors, that further threatens stability  
205 and group survival (Staw et al., 1981).

206 Finally, individuals and groups may tend to go around their lives in “circles” repeating the same  
207 mistakes, seemingly trapped in one behavioral mode. In organizations, similar death spiral pathologies  
208 can set in when changes in the environment do not invoke adaptation, but secrecy, blame, avoidance  
209 and passivity and learned helplessness (Kanter, 2003). In the general management literature,  
210 dysfunctional behavior is often described as a form of antisocial behavior, intended to bring harm (e.g.,  
211 Van Fleet and Griffin, 2006, Giacalone and Greenberg, 1997). In the current paper dysfunctional  
212 behavior is seen as counterproductive or ineffective behavior, that may have outlived its’ usefulness,  
213 and does not have the intended effect and may even have (unintended) harmful outcomes (Robinson,  
214 2008). In companies, dysfunctional or counterproductive work behavior undermines efficiency and can  
215 range from social loafing (putting less effort when working as part of a group than when working  
216 alone), conflict and withdrawal to theft, fraud, bullying and even murder (Robinson, 2008). The more  
217 “civilized” forms of dysfunctional behavior, such as social loafing and withdrawal, are most prevalent  
218 (Robinson, 2008), and these can become much more common in organizations and societies that are in  
219 a downward spiral and undermine individual autonomy. People feeling powerless in organizations  
220 exercising excess power are often triggered to perform counterproductive work behaviors (Lawrence  
221 and Robinson, 2007). During the Covid-19 crisis, withdrawal effects have become more widespread  
222 and the crisis sparked changes in attitudes toward work as well as changing work behaviors inside  
223 organizations (Newman et al., 2022). For many workers, stress levels increased, and work performance  
224 declined (e.g., Kumar et al., 2021, Vaziri et al., 2020).

225 At the organizational level, decline often sparks dislike and distrust among managers, who then start  
226 to avoid one another, hide information and deflect blame (Kanter, 2003). People within the  
227 organization do not act in concert anymore and the dwindling success rate of their actions make them  
228 feel helpless (Kanter, 2003). One often resorts to micromanagement: trying to control the actions of  
229 workers at a frustrating level of detail to steer them back to productivity. The pushback from workers  
230 will be to misbehave as a form of organizational resistance (Lawrence and Robinson, 2007), self-  
231 reinforcing cycles of micromanagement and counterproductive work behaviors (cf. Cannon, 2022,

232 Jensen and Raver, 2012). A toxic work or societal culture may emerge and persist for some time, with  
233 fear as an overriding principle (Cannon, 2022). Besides, the dangers of a “toxic discourse” around  
234 pending disasters (Buell, 1998, Hofrichter, 2000) may have paved the way for drastic measures taken  
235 to avoid such disasters (Schippers, 2020). However, some measures taken to prevent these hypothetical  
236 or expected future disasters have caused damage, leading to steep increase in poverty and inequalities  
237 (Schippers et al., 2022). Besides many layoffs, many people reflected on their job and subsequently  
238 decided to quit. “The Great Resignation” seemed to be a world-wide phenomenon (Sull et al., 2022,  
239 Ksinan Jiskrova, 2022, del Rio-Chanona et al., 2022). In the US, monthly resignation rates were higher  
240 than in the previous twenty years (Ksinan Jiskrova, 2022, Statistics, 2021). Many workers also changed  
241 jobs and did not withdraw from the work force altogether (“Great Reshuffle”) (Sull et al., 2022). At  
242 the beginning of 2021, more than 40% of workers were thinking of quitting and a toxic work culture  
243 was mentioned as an important reason (Sull et al., 2022). At the same time decline in organizations  
244 was often triggered by the Covid-19 crisis and non-pharmaceutical interventions implemented to  
245 reduce viral spread, such as closing of restaurants and “non -essential” shops (Brodeur et al., 2021). As  
246 early as April 2020 in the United States, the number of active business owners decreased by 22% within  
247 just three months (Brodeur et al., 2021, Fairlie, 2020). Taken together with other effects such as rising  
248 inequalities, increase in immigration, changed labor market, damaged mental health and well-being,  
249 this is arguably a big shock on societal cohesion (Silveira et al., 2022), increasing state fragility and  
250 decreasing state legitimacy (Seyoum, 2020).

251 In both society at large, as well as in many companies, toxic cultures can ensue during crises (cf.  
252 Meidav, 2021). In toxic cultures, behavior that management or governments would like to see is  
253 rewarded, while many practices go unchecked leaving room for fraud and corruption (cf. Kerr, 1975,  
254 Meidav, 2021, Breevaart et al., 2022). Indicative of such a toxic culture are: (lowered) level of  
255 helpfulness of people, (in)formality and (blind) enforcement of rules, underground avoidance of rules,  
256 feeling that things could be better but also feeling unable to change them, moaning “around the water  
257 cooler”, loss of morale, lack of initiative, top-down decision making, “double speak”, and lack of  
258 cohesion (Cannon, 2022). People are generally willing to do the right thing but find many roadblocks  
259 when they try (Myers, 2008). Moreover, historical research has shown that people fall back on  
260 “overlearned” comfort behavior, and biases become entrained again. For instance, a fallback on  
261 preference for ingroups ensures that during crises diversity efforts in companies are reduced and  
262 inequalities rise (Meidav, 2021). During organizational change, employee misconduct increases  
263 (Meidav, 2021, Ethics and Initiative, 2020) including even antisocial behavior (Belschak et al., 2018).

### 264 **1.1.3 Death Spiral Effect: definition and key characteristics**

265 Based on the above considerations, here we formally define the Death Spiral Effect as: *A vicious cycle*  
266 *of self-reinforcing dysfunctional behavior, characterized by continuous flawed decision making,*  
267 *myopic single-minded focus on one (set of) solution(s), resource loss, denial, distrust, and*  
268 *micromanagement, dogmatic thinking and learned helplessness.* The death spiral is often initiated by  
269 an external or internal event (e.g., crisis) causing a trauma or emotional response. On a societal level  
270 this spiral results in increasing gap between elite and masses, and massive resource loss.

271 Often, a death spiral is characterized by: (1) initial denial of the problem; (2) continuously and repeated  
272 flawed decision-making, often trying to fix the problem with the same ineffective solution over and  
273 over again; (3) increasing secrecy and denial, blame and scorn, avoidance and turf-protection, passivity  
274 and helplessness; (4) worsening of the situation, and a continuous (series of) crises following, further  
275 triggering a “survival mode” and tunnel vision, and (5) the felt or observed inability to escape or snap  
276 out of the ineffective cycle of decision-making. Other characteristics that emerge when the death spiral  
277 becomes apparent are: (1) a negative and distrustful atmosphere; (2) micromanagement: individuals,  
278 management or government trying to increase the number of (strict) rules and a focus on the adherence  
279 to those rules at the expense of effective problem-solving; and (3) censorship of opinions and  
280 knowledge outside the official narrative. These elements may be present to variable degrees  
281 concurrently and may reinforce each other. As the downward cycle continues, and resources loss  
282 escalates, the *desperation principle* may set in: a defensive mode in which people or groups  
283 aggressively and often irrationally try to hold on to the little resources that are left (Hobfoll et al.,  
284 2018), instead of thinking on how to snap out of the situation altogether.

### 285 **1.1.4 Differences from other concepts**

286 The concept of a death spiral is an umbrella concept that has some overlap with but also distinct features  
287 from some other concepts, such as group think, mass formation, Abilene paradox, and group  
288 polarization. In Table 1 we list those concepts and give an overview of similarities and differences  
289 versus the death spiral effect. All those concepts deal with forms of dysfunctional decision-making.  
290 However, the main difference is a combination of the repetitiveness of the dysfunctional decision-  
291 making process, and the stubborn and prolonged effect of the subsequent series of decision-making  
292 (See Table 1). The death spiral effect differs from groupthink in that groupthink is often related to a  
293 more finite series of decisions around one topic or outcome (e.g., the invasion of the Pig Bay) and  
294 focuses more on the harmony aspect (Janis, 1972, Janis, 1982a, Janis, 1982b). Thus, while groupthink  
295 can and will often be part of a death spiral, a death spiral is a more long-lasting, pervading, and

296 pathological dysfunctional behavior and affects many aspects of a person's life, team, company or even  
297 the whole society. At a certain moment, similar to groupthink, self-appointed mind guards appear, but  
298 the scale is much bigger. The death spiral effect takes groupthink a step further, it can lead to the  
299 collapse of a full society.

300 Mass formation has also been offered as an explanation for what is happening in society (Schippers et  
301 al., 2022, Desmet, 2022). This theory sees the people in society as a swarm, that will move in one  
302 direction, following a single narrative. The mass formation concept does not have the going around in  
303 circles element, that the death spiral has. The swarm-like element in this theory states that people do  
304 attend to others' behavior and copy that behavior (Desmet, 2022, Bak-Coleman et al., 2021). While  
305 mass formation can be part of the death spiral effect, and also irrational group behavior is an element  
306 of this effect, the difference the death spiral gives a broader explanation of what happens if people get  
307 stuck in this cycle.

308 The dysfunctional behavior shown in a death spiral also includes micromanagement, a toxic leadership  
309 style that stifles creativity and innovation (Allcorn, 2022) and has been pointed out to be a danger in  
310 terms of human freedom and an open society (see Table 1)(Esfeld, 2022). "Tit for tat" is a concept  
311 from game theory, it shares with the death spiral effect that parties get stuck in a behavioral mode  
312 reaching suboptimal results for the involved parties, while it would be possible for the parties to change  
313 their behavior (and thereby getting better results). The key difference is that the scope of the death  
314 spiral effect is much wider.

### 315 **1.1.5 Examples of death spirals can be found throughout history**

316 \_Scientists have offered a variety of explanations for the collapse of civilizations, which can also be  
317 seen as forms of "traumatic events" such as a natural catastrophe, war, famine, economic collapse, and  
318 mass migration (Scheffer, 2016, Wikipedia, 2023). Famous historical examples are the Roman empire  
319 and the Maya civilization (Tainter, 1988, Spengler, 1991). Oftentimes, not one explanation, but  
320 multiple factors may play a role in societal decline (Jones, 2021). Nevertheless, recurrent patterns  
321 operate (Jones, 2021). Oftentimes, markers of decline are clear, and the decline may have set in long  
322 before the collapse (Scheffer, 2016). The study of societal collapse, collapsology, is traditionally  
323 studied by historians, anthropologists and political scientists. Also, experts in cliodynamics and  
324 complex systems have joined this field, although experts within management and psychology to date  
325 could potentially have much to offer in terms of behavioral explanations. Similar to the initial phase of  
326 decline in companies, societies act too late, they resist change until smooth adjustments have become

327 impossible (Scheffer, 2016). The “sunk cost effect”, based on escalation of commitment prevents  
328 people from leaving and abandoning their property, ways of living and beliefs, even when the need to  
329 do so becomes apparent (Scheffer, 2016, Janssen et al., 2003). Also, elites may have a vested interest  
330 in maintaining the status quo (cf. Wilkinson and Pickett, 2009b, Pratto et al., 2006).

331 Nevertheless, from a psychological point of view, and especially from clinical and social psychological  
332 insights, much can be added here. Especially the idea of trauma causing a shift in behavioral mode  
333 from functional to dysfunctional seems key to the understanding of the factors that make up the death  
334 spiral effect. Hence, taking into account the psychological and decision-making processes leading up  
335 to the decline and fall of societies is key. From a biological point of view, collapse can be viewed as  
336 inevitable after a period of large population growth (Downey et al., 2016). As complex systems,  
337 common factors may contribute to decline, and these may have ripple or cascading effects (Diamond,  
338 2011). For a long time, the Malthusian catastrophe (the idea that the population growth outgrows the  
339 (linear) food supply, causing mass starvation and deaths) was perceived as a major threat (e.g., Ramya  
340 et al., 2020, Diamond, 2011). However, with the intensification of farming, it now seems possible to  
341 feed a growing world population (Erickson, 2006). Also there seems to be general agreement in the  
342 literature that food shortages in past times were not the sole cause of societal collapse, and maybe even  
343 more a consequence of societies inability to deal with their problems (Diamond, 2011). Erosion of  
344 established systems and resulting lack of loyalty to established political institutions plus increase in  
345 inequalities are all markers of decline (Diamond, 2011). Some see signs that society may be at the  
346 brink of collapse (Page, 2005). Page points to poor institutional choices that result in inability to solve  
347 collective action problems, and the organizing of social and economic life (Page, 2005). It has recently  
348 been noted that we live in a great third power shift in modern history, after the first, the rise of the  
349 Western world since the 15<sup>th</sup> century, and the second, near the end of the 19<sup>th</sup> century, the rise of the  
350 United States (Peters et al., 2022). The current power shift is defined by a rise of China, India, Brazil  
351 and Russia. An important problem that the US are dealing with is not only the growth of economic  
352 inequalities, which are huge, but also political division of society, military overreach and financial  
353 crises (Peters et al., 2022). Generally, what becomes apparent in the literature is that rising inequalities,  
354 a growing divide between elite and masses is an important and potentially reversable marker of societal  
355 decline (Diamond, 2019, Moghaddam, 2010).

### 356 **1.1.6 Action bias and repeated low-quality decision-making**

357 In a society in decline, the rate of decline and possible reversal are codependent on the governmental  
358 responses (Hutton, 2014, Toynbee, 1987). In some cases, there will be inaction, if a threat is not  
359 perceived as needing urgent action, but equally devastating can be overreaction to a threat (Hafsi and  
360 Baba, 2022, Maor, 2012, Maor, 2020). An action bias, a bias favoring action over inaction, often occurs  
361 when incentives to take action are bigger than incentives to refrain (Patt and Zeckhauser, 2000). After  
362 a while of ignoring warning signs, a tendency to react too strongly may take over, and it may also  
363 include suboptimal decision-making (Lorange and Nelson, 1987). When a crisis is overt, action may  
364 not carefully consider all pros and cons. These kinds of actions are more common than preventative,  
365 anticipatory actions, such as health advice, action to prevent a health crisis, and actions to prevent an  
366 environmental crisis (Magness and Earle, 2021, Patt and Zeckhauser, 2000). In the Covid-19 and  
367 accompanying economic crisis for instance, there is evidence of such an action bias (Winsberg et al.,  
368 2020, Schippers et al., 2022, Magness and Earle, 2021; p.512). People often assume that a big problem  
369 needs harsh and drastic solutions, while less drastic, but precise solutions and targeted, evidence-based  
370 interventions can work better than aggressive solutions (cf. Brown and Detterman, 1987, Walton, 2014,  
371 Wilson, 2011). Action bias, along with escalation of commitment and sunk cost fallacy may have  
372 played a role in the suboptimal decision-making processes surrounding the Covid-19 crisis (Schippers  
373 and Rus, 2021). Combined with (in hindsight) overestimation made by experts of the expected infection  
374 fatality and of the buffering effects of several aggressive measures (Pezzullo et al., 2023, Chin et al.,  
375 2021, Ioannidis et al., 2022) led to a disastrous chain of self-perpetuating decision-making (Magness  
376 and Earle, 2021, Murphy, 2023). Instead of dialing back, the general political climate and response  
377 doubled down on the measures and on defending a narrative in their support.

### 378 **1.1.7 Key marker of societal decline: Rising inequalities**

379 In current society, there are some clear signs of societal decline. While dwindling resources are not  
380 always apparent in declining societies, a key marker is hierarchical order and an elite with plenty of  
381 access to resources and masses that have increasing difficulties to survive (Diamond, 2011). Recently,  
382 a rather steep increase in inequalities has been observed (for a review see Schippers et al., 2022). This  
383 increase is partly caused by wage inequality, which the last forty years has sharply increased in the  
384 development countries (Acemoglu and Restrepo, 2022). Wage inequality is for a large part caused by  
385 automation (Acemoglu and Restrepo, 2022). While poverty decreased since the 19<sup>th</sup> century (Sullivan  
386 and Hickel, 2023), there are now clear signs that this trend is being reversed. Economic inequality has  
387 been found to have a range of effects such as reducing mental and physical health (Wilkinson and

388 Pickett, 2009a, Pickett and Wilkinson, 2015), decreasing trust, cooperation and social cohesion in  
389 society (Elgar and Aitken, 2010, Gustavsson and Jordahl, 2008, Van de Werfhorst and Salverda, 2012),  
390 heightening violence and social unrest (Jetten et al., 2021, d’Hombres et al., 2012) and increasing  
391 support for autocratic leadership (Jetten et al., 2021). Rising inequalities may thus have more far-  
392 reaching consequences and destabilizing effects than commonly believed, also via the effect on  
393 citizens’ sociopolitical behaviors and decreased social cohesion (Jetten et al., 2021, Van Bavel and van  
394 Bavel, 2016). Since the global financial crisis of 2008, this trend towards rising inequalities has become  
395 more visible (Jetten et al., 2021). Health within a population gets progressively worse alongside a  
396 development of decreased economic equality. Societies with relative equal levels of income have low  
397 levels of stress and high levels of trust, and people in such societies are generally cooperative. In  
398 unequal societies distrust rises as the rich fear the poor, as they worry to safeguard their wealth, while  
399 the poor suffer from stress, status anxiety and bitterness (Wilkinson and Pickett, 2009a, Wilkinson and  
400 Pickett, 2009b). Health and life expectancy lowers for the poor, unemployed and low-level employees  
401 (Neckerman and Torche, 2007, Smith et al., 1990, Boehm et al., 2011, Marmot and Shipley, 1996).  
402 Importantly, economic inequality has also been described as a downward spiraling effect of social  
403 problems. These include teenage pregnancies, with babies born to such mothers at greater risk of  
404 educational failure, juvenile crime and becoming teenage parents themselves, with decreasing health,  
405 and increasing imprisonment of those lowest on the social ladder (Wilkinson and Pickett, 2009a). On  
406 a grander scale, societies fall apart and societal dysfunction rises when an ever increasing group of  
407 have-nots are unable to sustain themselves let alone earn the money and produce the food to sustain  
408 the rich, and the difference between the elite and masses have become too big to bridge. (Wilkinson  
409 and Pickett, 2009a, Wilkinson and Pickett, 2009b).

410 Note that while most social problems are bigger in unequal countries, suicide and smoking levels are  
411 often higher in contemporary relatively equal societies, as aggression and violence is turned inward,  
412 and often will be directed at the self, when people tend to blame themselves when things are not great  
413 (Wilkinson and Pickett, 2009a). Inequality may be at the root of many problems in societies and more  
414 equal societies do better on almost all fronts (Boehm et al., 2011, Marmot and Shipley, 1996, Wilkinson  
415 and Pickett, 2009a).

416 Prior to the 19<sup>th</sup> century, most unskilled laborers were able to provide for a family of four (Sullivan  
417 and Hickel, 2023). A review on wages and mortality since the 16<sup>th</sup> century showed that in general  
418 extreme poverty was not widespread, with the exception of severe social disruption and dislocation,



419 such as war, famine and institutionalized dispossession. Interestingly, the rise of capitalism initially  
420 caused a dramatic *decrease* of human welfare, in terms of a decline in wages below subsistence level.  
421 In several regions, such as Northwest Europe, progress in terms of human welfare only began in the  
422 1880's, and in other regions as late as the mid-20th century. This period was characterized by anti-  
423 colonial and social political movements, and a redistribution of incomes as well public provisioning  
424 systems and the welfare state (Sullivan and Hickel, 2023).

425 Going back even further, historically, during the decline of the Roman Empire, even when the end was  
426 near, instead of trying to address the problems, there was unrealistic and excessive optimism about the  
427 future, and adherence to the past (Grant, 1976). In the earlier periods of the empire, the elites were  
428 willing to offer lives and treasure in the service of the common interest, while in the period of decline,  
429 the elites became increasingly selfish (Turchin, 2007). This went hand in hand with a decline in dearly  
430 held values such as thinking for the common good and virtues, enlarged bureaucracies and a rise in  
431 inequalities with steep increase in enrichment of the richest 1 percent in Rome, and an impoverishment  
432 of the middle classes (Goldsworthy, 2009).

433 *"(...)the richest 1 percent of the Romans during the early Republic was only 10 to 20 times as wealthy*  
434 *as an average Roman citizen. (...) By around A.D. 400, just before the collapse of the empire and when*  
435 *the degree of wealth inequality reached its maximum value, an average Roman noble of senatorial*  
436 *class had property valued in the neighborhood of 20,000 Roman pounds of gold. There was no "middle*  
437 *class" comparable to the small landholders of the third century B.C.; the huge majority of the*  
438 *population was made up of landless peasants working land that belonged to nobles. These peasants*  
439 *had hardly any property at all, but if we estimate it (very generously) at one tenth of a pound of gold,*  
440 *the wealth differential would be 200,000! Inequality grew both as a result of the rich getting richer*  
441 *(late imperial senators were 100 times wealthier than their Republican predecessors) and those of the*  
442 *middling wealth becoming poor, and indeed destitute."* (Turchin, 2007; pp. 160-161)

443 This rise of inequalities seems an overarching theme in many collapsing empire analyses (Turchin,  
444 2007). The work of Turchin describes a series of nested cycles of periods of relative prosperity and  
445 plenty, leading to an increase of population, but also to growing inequalities and dysfunctionality.  
446 Inequality affects *asabiyya*,<sup>1</sup> or social cohesion, defined by Turchin as: "the capacity of a social group  
447 for concerted collective action." (Turchin, 2007; p. 6). *Asabiyya* is generally high in times that empires

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<sup>1</sup> Turchin spells it *asabiya*.

448 are rising and low when empires are in decline (Turchin, 2007). Similar to the “Universe 25”  
449 experiment, this in turn leads to a breakdown in collaborative efforts and precedes a period of scarcity.  
450 In the next phase, disease, hunger, violence and war then lead to a rapid decline and often collapse of  
451 civilization (Turchin, 2007)(see figure 2).

452 In the Universe 25 experiment, mice lived in perfect conditions with enough living space, food and  
453 water, but when their numbers grew, inequalities rose and the behavior of all mice became  
454 dysfunctional and led to the extinction of the colony, long before the maximum number of mice was  
455 reached (Adams and Ramsden, Calhoun, 1973). It has been argued that in that particular experiment,  
456 where resources were plenty, the controlling of resources by a small number of mice, as well as  
457 excessive (negative) interaction led to the decline of the colony (Ramsden, 2011). Even after the  
458 numbers fell to lower than when pathology set in, mice behavior stayed dysfunctional (Ramsden and  
459 Adams, 2009).

460 In the context of the COVID-19 crisis, some have stated that this is a great leveler and that “we are all  
461 in this together”, however, this is clearly not the case: vulnerable groups have been negatively impacted  
462 (Ali et al., 2020). Inequalities have risen steeply since 2020 (20). While this trend was already visible  
463 before the pandemic started (for a review see Neckerman and Torche, 2007), especially billionaire  
464 wealth increased dramatically during the crisis (Schippers et al., 2022, Inequality, 2023). Between  
465 March 18, 2020, and October 15, 2021, billionaires’ total wealth increased over 70%, from 2.947  
466 trillion to 5.019 trillion, and the richest five saw an increase in 123 percent. Since then, gains have  
467 decreased slightly, because of market losses (Collins, 2021). Corporate profits also spiked as giant  
468 corporations used the excuse of crisis-related supply chain bottlenecks to drive up the prices of  
469 gasoline, food, and other essentials (Inequality, 2023). While CEO pay increased, general worker pay  
470 lagged behind, increasing the CEO-worker pay gap in the US (Inequality, 2023). To prove this in 2019  
471 average CEO pay was \$12,074,288 per annum compared to a median worker yearly pay at the 100  
472 largest low wage employers of \$30,416 in the U.S; in 2020 yearly average CEO pay was 13,936,558  
473 (a 15.42% increase) for workers it was 30,474 (a meagre 0.19% increase) (Inequality, 2023).

474 In effect, global billionaires made 3.9 trillion dollars by the end of 2020, while global workers earnings  
475 fell by 3.7 trillion, as millions lost their jobs around the world (Berkhout et al., 2021; p.12,  
476 Organization, 2020). The lowest-income workers were hit the hardest. In total, it has been estimated  
477 that during the crisis, by 2021, 150 million people were driven into extreme poverty (Howton et al.,  
478 2020). With widespread continuing demise, even the rich may start to lose. The crisis has worsened

479 many other aspects of inequality, such as educational, racial, gender, and health inequalities (Byttebier,  
480 2022; for a review see 20). Nevertheless, the elite may continue to centralize power and make decisions  
481 that are not in the interest of most people (Desmet, 2022). As the “masses” end up being in a downward  
482 spiral of dwindling incomes, not being able to pay for essentials, such as food, gas for heating the  
483 house, and medicine, they may experience significant financial barriers and may avoid health care  
484 (Weinick et al., 2005), leading to worsening health status for millions (cf. 19). Socio-economic  
485 determinants of health are often the result of persistent structural and socio-economical inequalities,  
486 exacerbated by the COVID-19 crisis (Ali et al., 2020, Schippers, 2020). The term *syndemic* describes  
487 “a set of closely related and mutually reinforcing health problems that significantly affect the overall  
488 health status of a population, against the background of a perpetual pattern of deleterious socio-  
489 economic conditions” (Byttebier, 2022, Bambra et al., 2020). Prior crises such as the Spanish flu led  
490 to an increase in inequalities and unequal health and wealth outcomes (Bambra et al., 2020). Sudden  
491 economic shocks, such as the collapse of communism, are related to an increase in morbidity, mental  
492 health decline, suicide, increased ill health and deaths from substance use (Bambra et al., 2020). These  
493 effects were experienced unequally in poorer regions, and among low-skilled working, exacerbating  
494 health inequalities (Bambra et al., 2020). Interestingly, after the 2008 financial crisis, countries that  
495 chose not to cut back on health and social protection budgets, had better outcomes than countries that  
496 made austere cuts in those budgets (Bambra et al., 2020, Stuckler and Basu, 2013). In current times,  
497 people lower on the social ladder bore the brunt of the negative side effects of the measures, in health,  
498 lifestyle changes as well as decrease in income (Schippers et al., 2022), even increasing their  
499 vulnerability to viral diseases (Enichen et al.).

500 The dysfunctional situation in most countries worldwide strengthens the incentives for mass migration  
501 into Western countries that still offer better prospects, in theory at least. However, this challenge, if not  
502 mishandled, may lead to importing poverty (Murray, 2017, Martin, 2009) creating an underclass, and  
503 further proclivity of an unequal society (cf. Peters and Shin, 2022, Gomberg-Muñoz, 2012).  
504 Furthermore, there is some evidence that poverty gives rise to higher crime rates (Dong et al., 2020).  
505 In the US, even minor crimes are severely punished, and imprisonment of poor people escalates  
506 inequalities (Wacquant, 2009, Wilkinson and Pickett, 2009a).

### 507 **1.1.8 Dysfunctional behavior of both elites and masses**

508 Prior research has shown that extreme inequalities lead to dysfunctional societies, both in the animal  
509 kingdom as well as in human societies (Grusky and Ku, 2008). In the animal kingdom it has been

510 shown to lead to “behavioral sink” or extreme dysfunctional behavior (Anderson and Bushman, 2002).  
511 The extent to which these studies have validity for human society is obviously debatable. For obvious  
512 ethical reasons, it is not possible to do a study in which the extreme hierarchy is tested, and  
513 subsequently lifted, but there is general agreement that countries with high inequalities have more  
514 social problems (Grusky and Ku, 2008, Van Bavel and van Bavel, 2016).

515 Historically, the elite that accelerates the developments and oftentimes is at the start of the death spiral  
516 effect, either because of their greed and hunger for power, or just because power corrupts, are also  
517 getting anxious as the societal decline progresses (Browning, 2022, Baker, 2022). The pressure to  
518 perpetuate economic growth comes with repercussions and an inevitable crumbling of financial  
519 markets, as happened in 2008 (Rushkoff, 2009). Rushkoff (2009) had hoped there would be a self-  
520 correcting mechanism when financial markets collapse, but this apparently did not happen. As the elite  
521 notice that things are going wrong, often, instead of using their wealth to make things better, they use  
522 their buffer for protecting themselves from the “masses” and for “escapism”. They start looking for  
523 ways to escape the pending societal collapse that they helped creating (Browning, 2022). While the  
524 masses experience a loss of freedom and prosperity, and may desperately try to hold on to whatever  
525 property and resources they still have (desperation principle; (Hobfoll et al., 2018), the elite also  
526 realizes disaster may strike and they also get into a survival mode, and may even start to fight each  
527 other (cf., Turchin, 2007).

528 The optimism of connectivity and the internet and the possibilities for open source democracy  
529 (Rushkoff, 2003) seem to have faded. Censorship has set in, along with a loss of scientific freedom  
530 (Kaufmann, 2021, Teixeira da Silva, 2021, Shir-Raz et al., 2022). The scientific debate was stifled  
531 during the Covid-19 crisis and dissenting views were censored (Shir-Raz et al., 2022). Suppression  
532 tactics resulted in damaging careers of dissenting doctors and scientists regardless of their academic or  
533 medical status (Shir-Raz et al., 2022). This in turn has led to a loss of trust in science and institutions  
534 (Hamilton and Safford, 2021). Worse, when serious, knowledgeable scientists with reasonable  
535 arguments and rigorous data are suppressed, this offers ammunition to blatant conspiracy theorists:  
536 charlatans can claim that orthodox science is non-tolerant and wrong.

537 Distrust escalates as the elite starts to fear the masses and the masses fear the elite (cf. Widmann, 2022).  
538 A more positive solution is often not considered by many and if it is, they often feel not capable of  
539 bringing this about (cf. Rushkoff, 2020).

540 Dysfunctional behavior may even have psychopathological roots. On the individual level, small, but  
541 significant changes in personality may have occurred during Covid-19 crisis, such as a decline in  
542 extraversion, openness, agreeableness, and conscientiousness compared to pre-pandemic levels, and a  
543 higher rate of change than would normally happen over time (Sutin et al., 2022). Worryingly, younger  
544 adults showed disrupted maturity: an increase in neuroticism and decreased agreeableness and  
545 conscientiousness. We know that these personality traits also influence behavioral responses at work.  
546 Conscientiousness and agreeableness are related to work behavior (Burke and Witt, 2004), academic  
547 performance (Chamorro-Premuzic and Furnham, 2003, Vedel et al., 2015, Vedel, 2014), search and  
548 presence of meaning in life (Steger et al., 2008) and work performance of individuals (Hurtz and  
549 Donovan, 2000) and teams (Peeters et al., 2006, Laakasuo et al., 2020). People who have few social  
550 and economic buffers suffer most. A twenty year follow-up among 3,759 participants in the US Midlife  
551 Development cohort, indicated that higher neuroticism and agreeableness and lower conscientiousness  
552 predicted increased mortality risk (Spears et al., 2019) attributed indirectly to sleep disruption and  
553 higher daytime dysfunction. Lower extraversion was related to increased death risk via the indirect  
554 effect of daytime dysfunction (Spears et al., 2019). Lower functioning of individuals jeopardizes job  
555 and career prospects and further enhances inequality.

### 556 **1.1.9 Resource Conservation Theory and repeated low-quality decision making**

557 When resources dwindle as a result of the continuously downward spiral, the desperation principle may  
558 apply. The desperation principle has been formulated within the conservation of resources theory  
559 (COR; Hobfoll et al., 2018). In COR theory, people, organizations and societies strive to obtain and  
560 hold on to resources they value. Since resource loss is more salient than resource gain, people go to  
561 great length to prevent resource loss. However, individual and groups must invest resources in order  
562 to prevent resource loss, recover from losses and/or gain resources. When valuable resources are lost,  
563 resource gains become more important (Hobfoll et al., 2018). The desperation principle states that  
564 “When people’s resources are overstretched or exhausted, they enter a defensive mode to preserve the  
565 self which is often defensive, aggressive, and may become irrational.” (Hobfoll et al., 2018; p. 106).  
566 Resource loss cycles indicate that the stress and faulty decision-making lead to less resources to offset  
567 resources loss and these loss spirals “gain in momentum as well as magnitude”. At the same time,  
568 “resource gain spirals tend to be weak and develop slowly.” (Hobfoll et al., 2018; p. 106).

## 569 **1.2 Reversing the downward spiral**

### 570 **1.2.1 How to snap out of the dysfunctional behavioral mode**

571 In general, grand societal challenges such as rising inequalities, social unrest and societal decline affect  
572 large portions of the population, are highly significant, but are potentially solvable (Eisenhardt et al.,  
573 2016). Lately, management scholars have applied organizational knowledge to a societal context by  
574 formulating solutions for such societal challenges using management theories (George et al., 2016),  
575 and models have been offered to integrate literature on resilience with crisis management literature  
576 (Williams et al., 2017). For instance scholars have offered solutions to alleviate poverty (e.g., Mair et  
577 al., 2016, Banerjee et al., 2011) and psychological injury in the context of large conflict and wars (De  
578 Rond and Lok, 2016). With respect to decreasing inequalities, especially work by (Mair et al., 2016)  
579 could be of interest, as they propose scaffolding as a way to decrease inequalities and alleviate poverty.

580 A nexus approach of treating policy domains such as health, food, water, energy and pollution as  
581 interrelated may be a viable option going forward (Boas et al., 2016). The UN Sustainable  
582 Development Goals (SDGs) indicate goals such as zero hunger, ending poverty, etc., and countries  
583 agreed to work towards these goals by 2030 (e.g., Sachs, 2015). A study using a network approach  
584 indicated which types of corporate activities are most and least aligned with SDGs (van Zanten and  
585 van Tulder, 2021). Improving the alignment of companies with multiple SDG's may not only help  
586 increase sustainability objectives, but may help in achieving a more stable and inclusive world; this  
587 may benefit companies as well (van Zanten and van Tulder, 2021). Countries were not on track in  
588 achieving those goals and the Covid-19 crisis further thwarted those goals (van Zanten and van Tulder,  
589 2020). Wicked problems thinking aims to better frame problems such as conflict, hunger and poverty  
590 and to find solutions (Lönngren and van Poeck, 2021, Head, 2008, Head, 2018).

591 The Covid-19 crisis can also be seen as interconnected failure, and SDGs seem now harder to achieve.  
592 Some have called for scaling back (Nature, 2020), while others have disagreed with scaling back  
593 (Bhattacharya et al., 2020). A meta-policy or policy about choosing policies may be helpful, together  
594 with the inclusion of experts that have innovative and perhaps dissenting ideas and solutions (Murphy,  
595 2023, Demarest and Victor, 2022). van Zanten and van Tulder (2020) summarized SDG logics  
596 (governance, systems and strategic), their hurdles, and the ways in which they may strengthen each  
597 other.

### 598 *Resilience*

599 In this respect, the concept of resilience, or how individuals, organizations and societies bounce back  
600 from adverse events, is informative (Vegt et al., 2015). Resilience on all levels seem to be dependent

601 on social integration, for instance on how supportive families and communities are, and this is  
602 especially apparent in times of crises (Vegt et al., 2015, Banerjee et al., 2011). Having resilient  
603 networks is also important in this respect, and research on how to strengthen networks and communities  
604 may be key to societal resilience and rebuilding society after decline has set in (Vegt et al., 2015). Trust  
605 and compassion, as well as effective communication and collaboration within networks may enable  
606 not only more effective response to crises and disasters (Shepherd and Williams, 2014), but also reduce  
607 suffering caused by societal decline (Williams and Shepherd, 2018). After disasters, such as after an  
608 earthquake, it has been found that family firms, especially those that involve more members, are best  
609 positioned to make use of posttraumatic entrepreneurial opportunities for recovery and growth (Salvato  
610 et al., 2020). Recent work in a company context has shown that companies can react to adverse events  
611 in diverse ways to post-shock challenges (Shepherd and Williams, 2022). This research highlights the  
612 role of post-adversity growth during adversity and gives insight in the different paths to resilience.

### 613 *Compassion*

614 In terms of reversal of the downward trend, humanness and compassion plays a role. Compassion  
615 organizing was coined as a term to describe the coordinated organizational response to human suffering  
616 inside and outside of the organization (Dutton et al., 2006). Compassion is an innate response to human  
617 suffering, and involves recognition of suffering, empathetic concern and behavior that is aimed at  
618 alleviating suffering (Dutton et al., 2006). The reversal of a downward trend of societal decline, may  
619 be more difficult than posttraumatic growth after (natural) disasters, by its sheer scale. While a disaster  
620 may provoke compassionate organizing to alleviate mass suffering (Williams and Shepherd, 2018,  
621 Shepherd and Williams, 2014), what can be done for the alleviation of suffering and crisis management  
622 in the context of societal decline may be less obvious (cf. Williams et al., 2017). Often, individuals,  
623 teams and organizations working to alleviate suffering experience intense emotions that may spur  
624 strong involvement of volunteers and companies, and people often refer to this as a “calling” (De Rond  
625 and Lok, 2016, Schabram and Maitlis, 2017, Langenbusch, 2020). However, that sensemaking and  
626 strong emotion can also lead to faulty decision-making (Cornelissen et al., 2014, Hafsi and Baba,  
627 2022). In the Covid-19 crisis, digital innovations were suggested as a way to alleviate suffering  
628 (Majchrzak and Shepherd, 2021). However, we need rigorous studies on which compassion-based  
629 interventions may be effective. It is important to help people to regain a sense of purpose in life and  
630 increase posttraumatic growth of individuals and groups in society (de Jong et al., 2020, Dekker et al.,  
631 2020).

632

### 633 **1.2.2 Turnaround leadership and culture change**

634 Prior research has shown that leadership is key to follower behavior (Cao et al., 2022). Passive and  
635 destructive leadership styles, such as abusive, narcissistic and authoritarian, were associated with  
636 higher levels of dysfunctional follower behavior, i.e., workplace aggression. Conversely, ethical  
637 leadership, change-oriented as well as relational-oriented leadership was negatively associated with  
638 workplace aggression. If leaders' behavior changes, this also affects organizational culture and  
639 behavior of followers.

640 A historical turnaround leader that managed to get a country out of a negative spiral was Nelson  
641 Mandela, in South Africa. Instead of installing tribunals, he established the Truth and Reconciliation  
642 Commission. This helped to move beyond blame and regain respect for one another. A problem with  
643 leaders that step up in turbulent times, is that they are often not recognized and valued in the midst of  
644 the turmoil by the masses, and they may also be seen as enemies of the ruling elite. As they try to  
645 reverse the downward spiral, they may face hardship, imprisonment, and sometimes even death. Nelson  
646 Mandela spent over 27 years in prison.

647 Turnaround leadership faces the difficult task to break the negative spiral and restore trust and bring  
648 back positive energy within the organization (Bibeault, 1998) or society (Gibson, 2006). This is all the  
649 more difficult, because such companies often suffer from collective denial, or unwillingness to admit  
650 that there is a problem at all. Sometimes the problems become so big, that people act like the problem  
651 does not exist (cf. Meyer and Kunreuther, 2017). On a company level, it has been observed that even  
652 though individually, people know and may even admit that the company is in trouble, they collude in  
653 collective denial, or pluralistic ignorance (Kanter, 2003). Strategies that successful turnaround leaders  
654 in companies often employ are promoting dialogue, engendering respect, sparking collaboration and  
655 inspiring initiative (Kanter, 2003). The challenge is how far the tactics used by a turn-around leader  
656 within an organization can be applied on a societal level as well.

### 657 **1.2.3 Avoidance of blame game**

658 During the Covid-19 crisis, many have suspect conspiracies were at play, probably due to both the  
659 scale of events, as well as the need for explanations (Pummerer et al., 2022, Douglas, 2021, Bavel et  
660 al., 2020, Ivanova). While the belief in conspiracy theories has been related to reduced institutional  
661 trust, lower support for and adherence to imposed measures (Pummerer et al., 2022), it can also be seen  
662 as an ineffective form of coping with the situation (Schippers, 2020). While people may have a need  
663 for finding out who or what is to blame for the situation, the dangers of co-occurring collective



664 narcissism (i.e. exaggerated belief in the greatness of the in-group, which is not recognized by others)  
665 and conspiracy theories, such as the endorsement of violence and undemocratic governance, have been  
666 pointed out (Golec de Zavala et al., 2022). As the relevance and/or truthfulness of conspiracy theories  
667 are often hard to check, constructive ways forward are blocked. When focusing on parties that are to  
668 blame for the situation, while some people may feel that revenge can be helpful, blame mostly fulfills  
669 a felt need for retribution and only a subset of people seems to find revenge important and even  
670 pleasurable (Szymaniak et al., 2022). Punishment of perpetrators is not very effective to prevent or  
671 retribute transgressions in terms of law enforcement (Metz, 2022). In the current situation, this may be  
672 even more complicated, as a lot of damage may have been done for the “right” reasons, i.e. in the name  
673 of public health (Schippers et al., 2022, Schippers and Rus, 2021). It may be hard to disentangle  
674 motivations of individual decision makers and decisions were also made in a context of approval of  
675 such measures (cf. Ohlin, 2007). A more constructive approach therefore may be in reconciliation  
676 (Metz, 2022), reversing the most aggressive and ineffective policies, and learning from mistakes in  
677 order to do better in the future (Schippers et al., 2022). If pressure for revenge and retribution escalates,  
678 decision-makers who made grave mistakes will likely double down on their mistakes in order to avoid  
679 punishment. As many of these decision-makers continue to have power in (or on) public health and  
680 science, such defensive continued endorsement of false narratives can be devastating for the credibility  
681 of both public health and science at large. Moreover, it is imperative that people can easily experience  
682 positive emotions instead of enduring stressors (Johnson, 2022). Preventing long-term stress is critical  
683 to quality of life and longevity (Johnson, 2022). Mutual empathy may need to be promoted in  
684 generating a positive view for the future (Beck et al., 2018, Halamová et al., 2022).

### 685 **1.3 Upward spiral**

686 A downward spiral may be reversed by using an adaptive response. Based on the literature cited above,  
687 the following steps may be necessary.

688 Step 1: Step out of the ant mill: recognize that there is a problem, daring to admit that things do not  
689 feel right

690 Step 2: Reflect on what the problem is

691 Step 3: Start thinking of possible solutions

692 Step 4: Start thinking about the ideal situation (your life, company, society)

693 Step 5: Make a plan and implement, even if you feel it might not work immediately. Make sure to trust  
694 the plan, at least for a set period of time.

695 (FIGURE 4: Upward spiral breaking the Death Spiral: From societal decline to societal flourishing)  
696 Making sure that people involved are also participants in decision-making is key. As (Perret et al.,  
697 2020) state “The fate of states, companies and organizations are shaped by their decisions. It is then  
698 surprising that only a minority of individuals are involved in the decision-making process.”

### 699 **1.3.1 What can individuals do?**

700 Whether in families, groups, organizations or general society people perceive that a toxic culture is  
701 ingrained or becomes apparent, many people have problems addressing this, out of fear of being  
702 excluded from the group, or because they do not know how to reverse the downward trend (Richardson,  
703 2021, Packer, 2009). Richardson (2021) describes that with a change in society toward a “new normal”,  
704 people in power will demand obedience to their decisions. Concentration of power and wealth at the  
705 top is often accompanied by forcefully compelling obedience to new customs, rules, and behavior. In  
706 the early stages people often either downplay the signs of danger and may succumb to coercion, out of  
707 fear for the consequences (Richardson, 2021). People who openly resist, often face dire consequences.  
708 However, other ways of “resisting” listed by Richardson (2021) are a refusal to accept the new goals  
709 and tradition imposed, not buying into the belief that this new order is inevitable, and making a  
710 conscious choice to be rather “left behind” than to join in. This all the while maintaining civility and  
711 commitment to the common good, and adhering to values that are important to a civil society  
712 (Richardson, 2021). Constructive deviance and speaking up (as opposed to silence) are an important  
713 step in counteracting (organizational) wrongdoing (Starystach and Höly). Some argue that constructive  
714 deviance should become socially expected behavior (Ralston, 2010). This is in line with  
715 recommendations to prevent groupthink to make sure to appoint a “devil’s advocate” (Akhmad et al.,  
716 2021, MacDougall and Baum, 1997, Janis, 1982b, Janis, 1983). Group members that strongly identify  
717 with the group are more prone to speak out on collective problems (Packer, 2009).

### 718 **1.3.2 Collective action**

719 Besides individuals in groups and societies speaking up and voicing concerns, collective action may  
720 have additional benefits. While individual control over the social system seems out of reach, collective  
721 action can bring about positive outcomes for the group as a whole (Klandermans, 1997). Key predictors  
722 of collective action are perceived injustice, efficacy (i.e. sense of control) and identity (i.e.  
723 identification with a group (Van Zomeren et al., 2008, van Zomeren, 2013). People are also more likely  
724 to engage in protests if they perceive injustice for the group they identify with (Klandermans, 2002).  
725 Injustice and efficacy seem to be stronger predictors for collective action in case of incidental rather

726 than structural disadvantage, while group identification was a strong predictor for collective action for  
727 both types of groups (Kraemer, 2021). While structural disadvantages are more harmful, both  
728 psychologically and in terms of inequalities, they are less likely to evoke action-oriented emotional  
729 response and collective action (Schmitt and Branscombe, 2002, Major, 1994), and are thus harder to  
730 change (Sidanius and Pratto, 2001, Sidanius et al., 2004, Jost and Major, 2001). Such differences and  
731 structural injustices often become ingrained and disadvantaged groups may even end seeing their state  
732 as natural and immutable (Major, 1994). It is then seen as a property of a certain group (Kraemer, 2021)  
733 and the existing differences between groups are seen as legitimate (Jost and Major, 2001). Social  
734 dominance theory seeks to explain how and why societal group-based inequalities exist and persist,  
735 even though people would wish for a more equal society (Pratto, 1999, Pratto et al., 2006). In most  
736 societies, some groups enjoy material and symbolic resources, such as political power, wealth, access  
737 to housing and food (Pratto et al., 2006). Both privileged as well as underprivileged groups may come  
738 to see the status quo as legitimate, and this is often institutionalized. Profit-maximizing financial  
739 institutions, internal security organizations and criminal justices systems may enhance hierarchy  
740 (Pratto et al., 2006). Conversely, human and civil rights movements and institutions, welfare  
741 organizations and religious organizations may reduce hierarchy. However, often these organizations  
742 often lack funding and often do not really challenge the status quo (Pratto et al., 2006). When collective  
743 action is taken against the status quo, it is often seen as illegitimate and shut down (Pratto et al., 2006)  
744 and repression of social movements also is quite common (Loadenthal, 2016). Historically, non-violent  
745 collective actions have been more successful than violent ones in (re)instating democracy (Chenoweth,  
746 2021, Chenoweth et al., 2011), and this type of actions have become much more common (Kraemer,  
747 2021), see also (Schippers et al., 2022).

### 748 **1.3.3 Decreasing inequalities post-pandemic should be a top priority**

749 In the United Nations Sustainable Development Goals, SDG10 is reducing inequalities (UN, 2022).  
750 However, the focus of the targets and indicators seems to be more on enhancing inclusion than on  
751 explicitly reducing inequalities (Fukuda-Parr, 2019). This is an important omission, as it would be key  
752 to address the issue of extreme inequalities and the concentration of wealth at the top (Fukuda-Parr,  
753 2019). While it is clear from our review that rising inequalities and decreasing democracy (as opposed  
754 to authoritarianism) can contribute to significant societal decline and high levels of mortality via  
755 disease, famine and war, it is not easy to determine where to start in order to reverse this trend. While  
756 this seems a large and complex problem, when thinking of possible solutions effectiveness and ease of  
757 implementation matter the most. Communities have a responsibility to investigate methods to act on

758 the social, educational, physical, and mental health crisis. Interventions should be rigorously tested  
759 with randomized controlled trials for effectiveness and then audited for their implementation success.

760 As the COVID-19 crisis and measures of unprecedented severity and duration are related to many  
761 negative side effects and increase inequalities worldwide (Marmot and Allen, 2020); stress, health, and  
762 trauma for vulnerable populations must be addressed (Whitehead and Torossian, 2021). It may take a  
763 long time to recover from the economic fall-out and rise in inequalities (Whitehead and Torossian,  
764 2021). Governments should take individual and societal well-being as a spearhead for decision-making  
765 in the upcoming years (Frijters et al., 2020). Hopefully, with effective interventions, the tide can be  
766 turned. However, while many ideas and proposals may emerge, implementing them without rigorous  
767 trials may add further waste after we have already endorsed too many failed interventions.

#### 768 **1.4 Final comments**

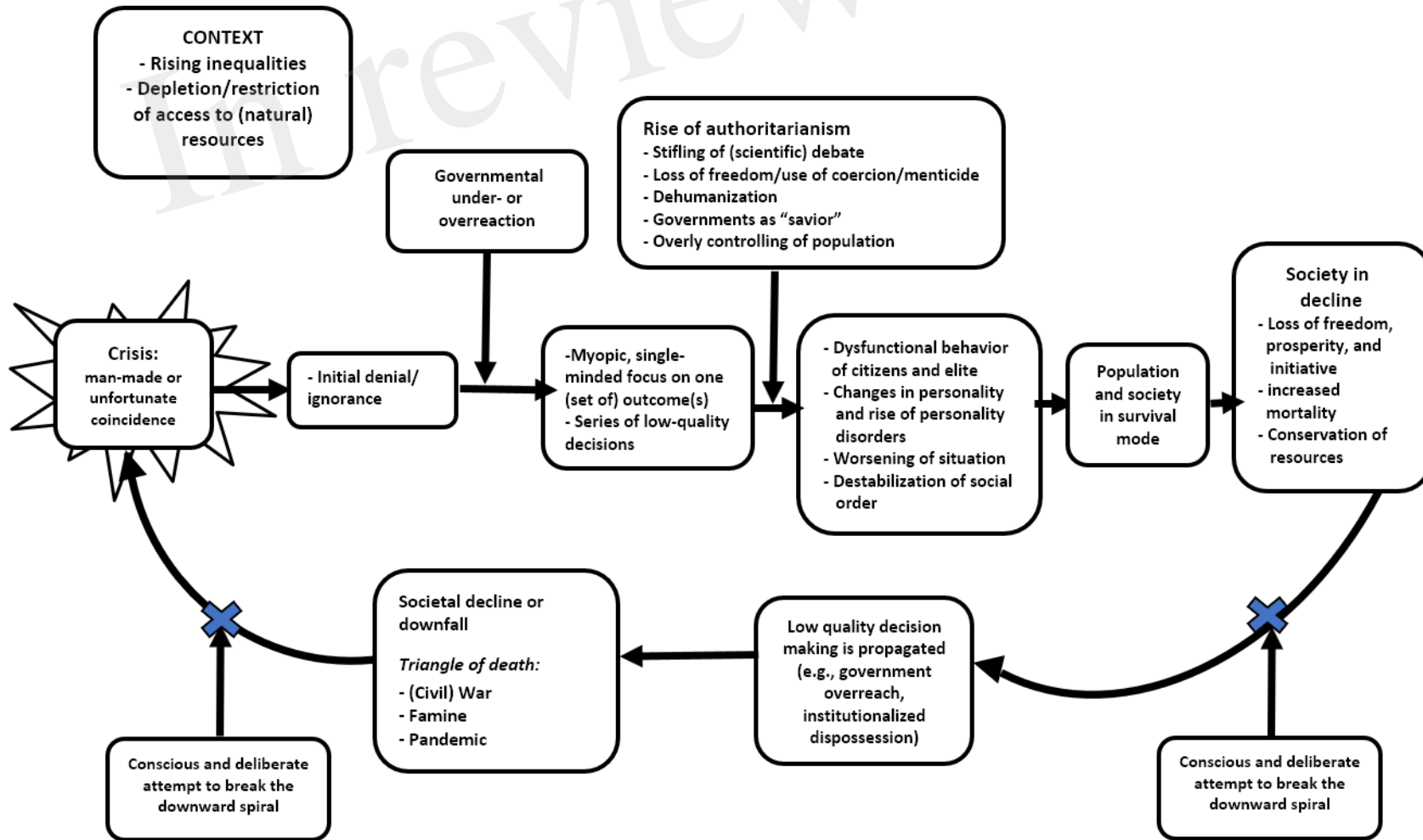
769 The current paper showed that important markers of societal decline, increasing inequalities and  
770 decreased (access to) resources have increased, and describes a possible mechanism that may  
771 contribute to following a path toward decline instead of reversing it, namely, the death spiral effect.  
772 The Covid-19 crisis may have accelerated this effect, characterized by rising inequalities and rising  
773 authoritarianism, creating an elite that controls access to resources more tightly, and making  
774 decisions that may set humanity on a path to famine, war and disease. Reversing this trend is of  
775 utmost importance to all people, elite and masses, and not just the ones negatively affected. It is key  
776 to recognize truth and follow Solzhenitsyn's advice: live not by the lies.<sup>2</sup> In short, our review,  
777 synthesizing research from several fields indicates that next to turnaround leadership and building  
778 resilient communities, using compassion, avoiding a blame culture and strengthening of democracy  
779 may help. Ideally, public health agencies, governments, companies, all relevant stakeholders as well  
780 as individuals should collaborate toward the goals of a healthier and happier future for all.

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<sup>2</sup> See Solzhenitsyn's eponymous essay from the 12<sup>th</sup> of February 1974.

781 1.5 Figures

782 Figure 1. Death Spiral Effect: Downward spiral of societies and/or groups in decline



783

Figure 1: Death Spiral Effect: Downward spiral of societies and/or groups in decline

784

785 Figure 2: Death spiral model of societies in decline

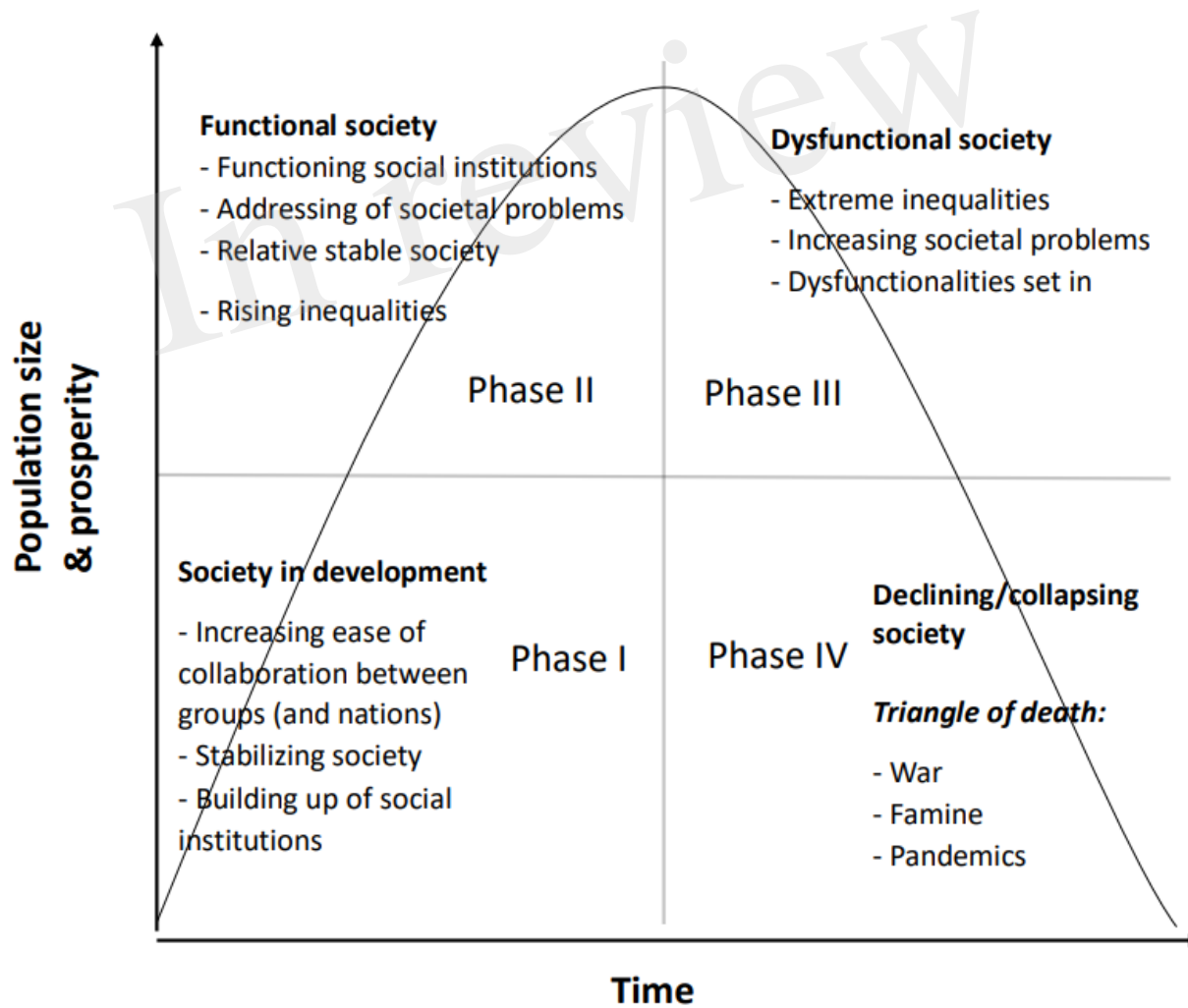


Figure 2: Death spiral model of societal decline

786

787 Figure 3: Upward spiral breaking the Death Spiral: From societal decline to societal flourishing

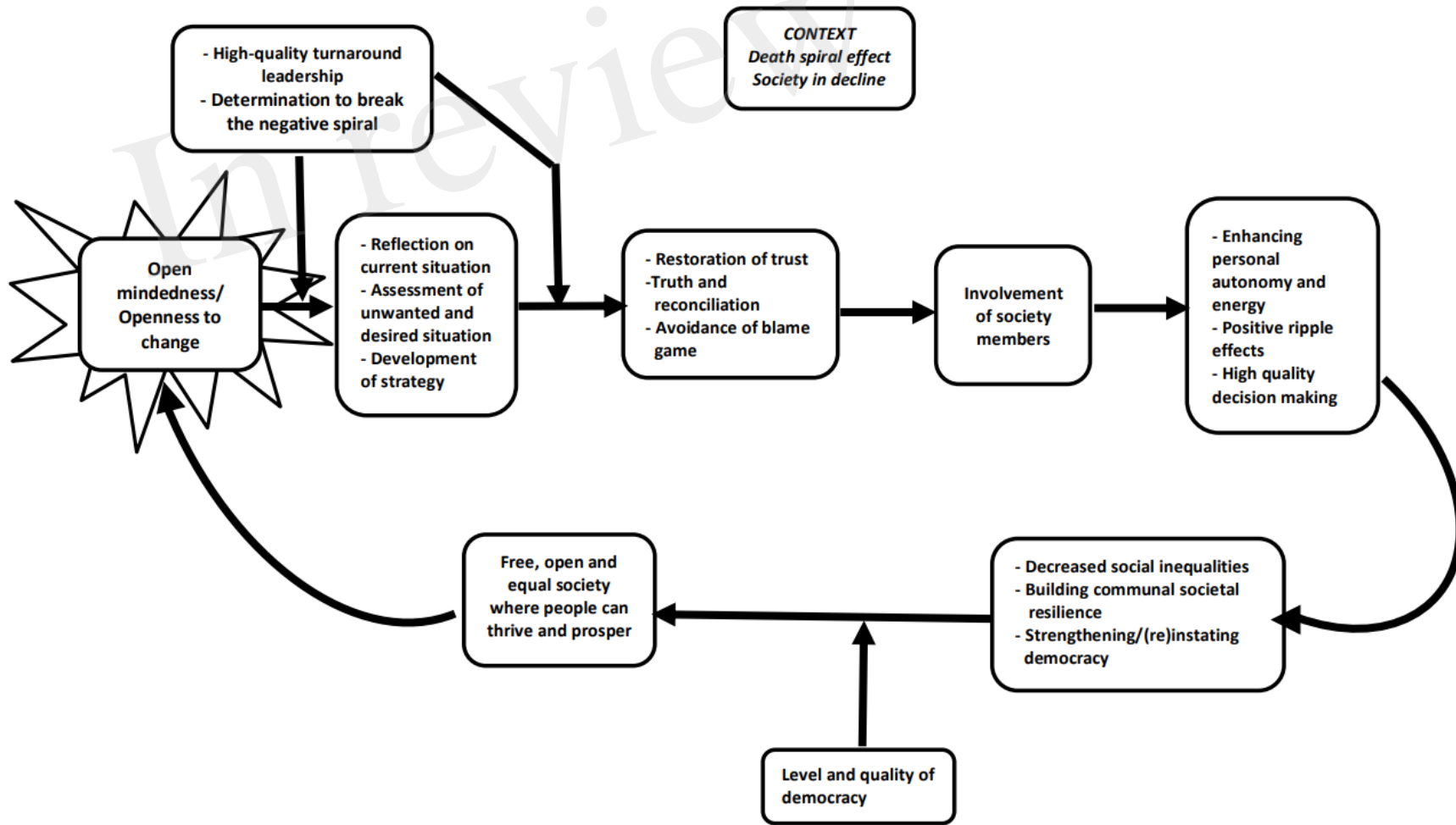


Figure 3. Upward spiral breaking the Death Spiral: From societal decline to societal flourishing

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 791 follow figure instructions.

792 **1.6 Tables**

793 Table 1 Death spiral effect compared to other related concepts

Concepts → Attributes ↓	Death spiral effect	Mass formation	Groupthink	Abilene paradox	Group polarization
Other names for the concepts	Ant mill effect	Crowd formation, Group formation (Hernandez, 1988)	N/a	N/a	N/a
Concise definition	A process where individuals, groups and/or societies get stuck in a behavioral mode that leads to repeated subpar decision making, which may result in the collapse of a society.	The mass behaves like a swarm or a group of molecules, because people are in an altered psychological state (Desmet, 2022; p. 93, Schippers et al., 2022). The end result is that the masses adapt to a totalitarian mindset, where deviation of the main narrative is not accepted.	“Mode of thinking in which individual members of small cohesive groups tend to accept a viewpoint or conclusion that represents a perceived group consensus, whether or not the group members believe it to be valid, correct, or optimal. Groupthink reduces the efficiency of collective problem solving within such groups.” (Schmidt, 2016).	“Organizations frequently take actions in contradiction to what they really want to do and therefore defeat the very purposes they are trying to achieve.” (Harvey, 1974; p. 66). The Abilene paradox describes a self-defeating process.	The tendency of a group to make decisions that are more extreme than the initial inclination of its members. These more extreme decisions tend to favor greater risk if people's initial tendencies are risky, and caution if people's initial tendencies are cautious.



<p>First publication on the concept</p>	<p>On the death spiral effect in actuarial science and health economics: “Adverse Selection in Health Insurance” (1998) by David M. Cutler (1965-present) and Richard J. Zeckhauser (1940-present) (Cutler and Zeckhauser, 1998).</p> <p>On the ant mill effect in animal behavior <i>Edge of the Jungle</i>, pp. 291-294 (1921) by Charles William Beebe (1877-1962) (Beebe, 1921).</p> <p>N.B. in this paper we develop the death spiral effect further and apply it to</p>	<p>In English: Hannah Arendt, <i>The origins of Totalitarianism</i> (2017)[1951] (Arendt, 2017).</p> <p>In German: Massenbildung in <i>Massenpsychologie und Ich-Analyse</i> (1921) by Sigmund Freud (1859-1939)(Freud, 1921).</p> <p>In French: <i>La Psychologie des foules</i> (1895) by Gustav Le Bon (1841-1931) (Le Bon, 1895).</p>	<p>For the popular audience: ‘Groupthink’ (1952) by William H. Whyte Jr. (1917-1999) (Jnr, 1952). In scholarship: by Irving Lester Janis (1918-1990) (Janis, 1983).</p>	<p>“The Abilene paradox: The management of agreement” (1974) by Jerry B. Harvey (1935-2015) (Harvey, 1974).</p>	<p>James A. F. Stoner (1935-present) in an unpublished master thesis as ‘risky shift’ (Stoner, 1961).</p>
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	society as whole.				
Stuck in a behavioral mode	Yes and thereby ensuring suboptimal decisions.	To some extent, behaving like a swarm.	No, but stuck in a mental framework.	People engage in behavior none of them wants to engage in, but they do not address the issue.	Conformity seems to contribute to the behavior.
Unit of analysis	Individual, group, society.	Society or the mass(es) (Arendt, 2017; p. 403)	Group	Group	Group
Level on which the concept operates	Society, but the role of groups and individuals are also described.	Society and groups (if the society is too small in population: mass formation cannot take effect (Arendt, 2017; p. 403-406).	Groups	Groups	Groups
Viewing society as a swarm	Yes,	Yes (Desmet, 2022, Schippers et al., 2022; p. 4)	No	No	No
View of the group	As an entity, but also consisting of individuals and groups that can make their own decisions and “break” away from the ant mill.	The concept applies to societies as a whole and groups. The group behaves as a swarm (Desmet, 2022, Schippers et al., 2022; p. 4) or “super individual” (Desmet, 2022; p. 125-126). Desmet borrows the concept of super individual to describe the crowd from	‘Just a sum of fragmented individuals’ (Kim, 2001).	‘As a single organism’ (Kim, 2001).	Social group behavior, sometimes as a network of individuals (e.g., Zhang et al., 2020).

		Nikolaas Tinbergen (Tinbergen, 1946).			
Micromanagement	Is part of the concept.	Desmet (37) describes: a 'regulation mania' (pp. 79-80).	No	No	No
Descriptive and/or explanatory	Descriptive and explanatory	Descriptive	Descriptive	Descriptive	Descriptive and explanatory
Individuals attitude towards the issue	Active	Active/ passive	Active (Kim, 2001; p. 180-181, 187)	Passive (Kim, 2001; p. 180-181, 187)	Active
Self-censorship	Yes	Yes	Yes (Janis, 1991)	Yes	Unknown
The concept is concerned with decision making moments and processes	Yes	Yes	Yes	Yes	Yes
Responsibility for faulty decision making	Elites and in a later stage the masses	Elites are responsible and the crowd is complicit. The crowd and the leaders hypnotize each other.	Groups	Individuals	A shared responsibility
Effect on risk taking behaviors and/or decision making	Decision makers get stuck on an unproductive path.	Mass formation leads to decisions making based on wrong assumptions and power that cannot be challenged.	Groupthink leads to defective decision making.	Decisions that are made do not align with the interests/goals of the organization.	More likely to take risk.
Individuals' perception of the decision at the time	Not specified	The individual's identity has been subsumed by the group identity (37).	'Made of their own free will, and hence took an air of attachment for that decision.'	'Coerced into making a decision, and then took an air of detachment	Not specified

of the decision making			(Kim, 2001; p. 185).	from that decision.’ (Kim, 2001; p. 185).	
During group decision-making, individuals' conditions could be assessed as:	Dysfunctional and sometimes even manipulated/ brainwashed in order to go as a group in one direction.	‘The fanaticized members can be reached by neither experience nor argument, identification with the movement and total conformism seem to have destroyed the very capacity of experience, even if it was torture or the fear of death.’ (Arendt, 2017; p.403).	‘Preoccupied by group illusions such as invulnerability and unanimity → no dilemma’ (Kim, 2001; p. 185).	‘Firm commitment to their own views leads to the dilemma (expressing their views vs. going along with the misperceived collective reality)’ (Kim, 2001; p. 185).	Crowd mentality where group decisions become more extreme than when acting alone.
Affective state of individuals	Depends on the situation	Fearful	‘Group euphoria’ (Kim, 2001; p. 185)	‘Pain, incompetence, frustration , irritation or anger’ (Kim, 2001; p. 185).	Mob mentality, group emotions propagate within the group (anger, euphoria, etc.).
Internal group status after decision making	Not specified	Not specified	“Esprit de corps or loyalty to the organization; higher cohesiveness” (Kim, 2001; p. 186).	“Conflict; lower or after crumbled cohesiveness” (Kim, 2001; p. 186).	Not specified
Most influential independent variable	Series of dysfunctional decisions that increases inequality gap between elite and masses.	Fanaticism (Arendt, 2017; p. 402-403)  As long as individuals can stay members of the ‘movement,’ they are prepared to sacrifice themselves.	‘Fear of separation’ (Kim, 2001; p. 186)	‘Cohesiveness’ (Kim, 2001; p.186)	Persuasive argumentation (Isenberg, 1986)

Energy state	Can be high and low energy.	Can be both high and low energy.	High energy (Kim, 2001; p.184, 188)	Low energy (Kim, 2001; p. 184, 188)	Does not apply.
Can be subsumed as part of death spiral	N/a	Can be subsumed.	Can be subsumed.	N/a	Can be subsumed by the death spiral effect and groupthink.
Stereotyping of enemy groups as evil and/or targeted for elimination.	Not always	Yes	Yes (Janis, 1991)	N/a	Sometimes
The type of pressure exercised on members of the group/society	Normative and informational influence by elite.	Normative and informational influence.	Pressure “is directly applied to anyone who momentarily expresses doubts about the group’s shared illusions. Such pressure often is masked as amiability, in an attempt to ‘domesticate’ the dissent, so long as doubts are not expressed outside the ingroup, and fundamental assumptions are not		Normative and informational influence

			challenged.”(Cooke, 2001; p.113).		
Morality	Elite appeals to morality to steer behavior of masses.	Under the condition of mass formation, the crowd has “a strong tendency to surrender to impulses that, under normal circumstances, would be considered radically unethical.” (Desmet, 2022; p. 92).	Group members ‘believe unquestionable in the inherent morality of their ingroup’ and predisposing ‘members to ignore the ethical or moral consequences of their decisions’ (Janis, 1991; p.264).	N/A	Sometimes appeals to morality.
The illusion of invulnerability	Yes	Yes	Yes (Janis, 1991)	No	No
Unanimity	Yes	The individual disappears in the group which acts like a new ‘super individual.’ (Desmet, 2022; p. 125-126).	‘An illusion of unanimity exists with the group, with silence assumed as concurrence with the majority view.’ (Cooke, 2001; p. 113).	Yes	Yes
Mind guards	Are part of the concept	Are part of the concept	Are part of the concept (Janis, 1983, Cooke, 2001; p.113)	Not necessarily	Sometimes, not necessarily

794

795        **2     Additional Requirements**

796     For additional requirements for specific article types and further information please refer to “Article types” on every Frontiers journal page.

797        **3     Conflict of Interest**

798     *The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as*  
799     *a potential conflict of interest.*

800        **4     Author Contributions**

801     MS played the primary role in the conception of the manuscript, writing, reviewing, and revising the manuscript. JI contributed to writing  
802     the manuscript and editing the manuscript. ML contributed to and partly wrote the section on “Differences from other concepts”, crafted  
803     Table 1, contributed to writing, and editing the manuscript. All authors contributed to the article and approved the submitted version.

804        **5     Funding**

805     No funding specific for this paper was received.

806        **6     Acknowledgments**

807     The authors wish to thank Cristina Calin for her help with crafting Tables and Figures, and editing. Further, the members of the Erasmus  
808     Center for Study and Career Success [<https://www.irim.eur.nl/erasmus-centre-for-study-and-career-success/>] for their helpful comments on  
809     an earlier version of this manuscript.

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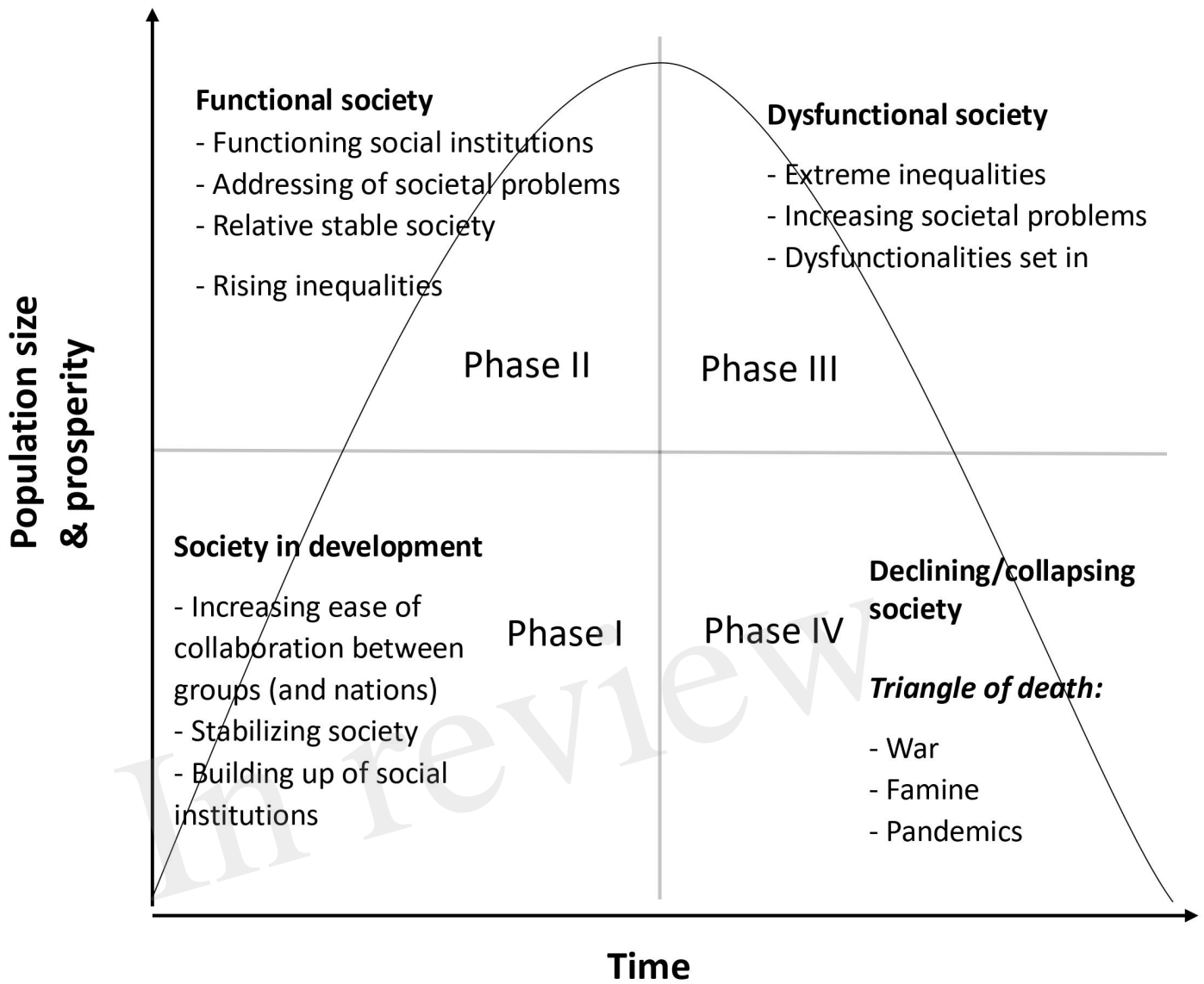


Figure 2: Death spiral model of societal decline

Figure 2.JPEG

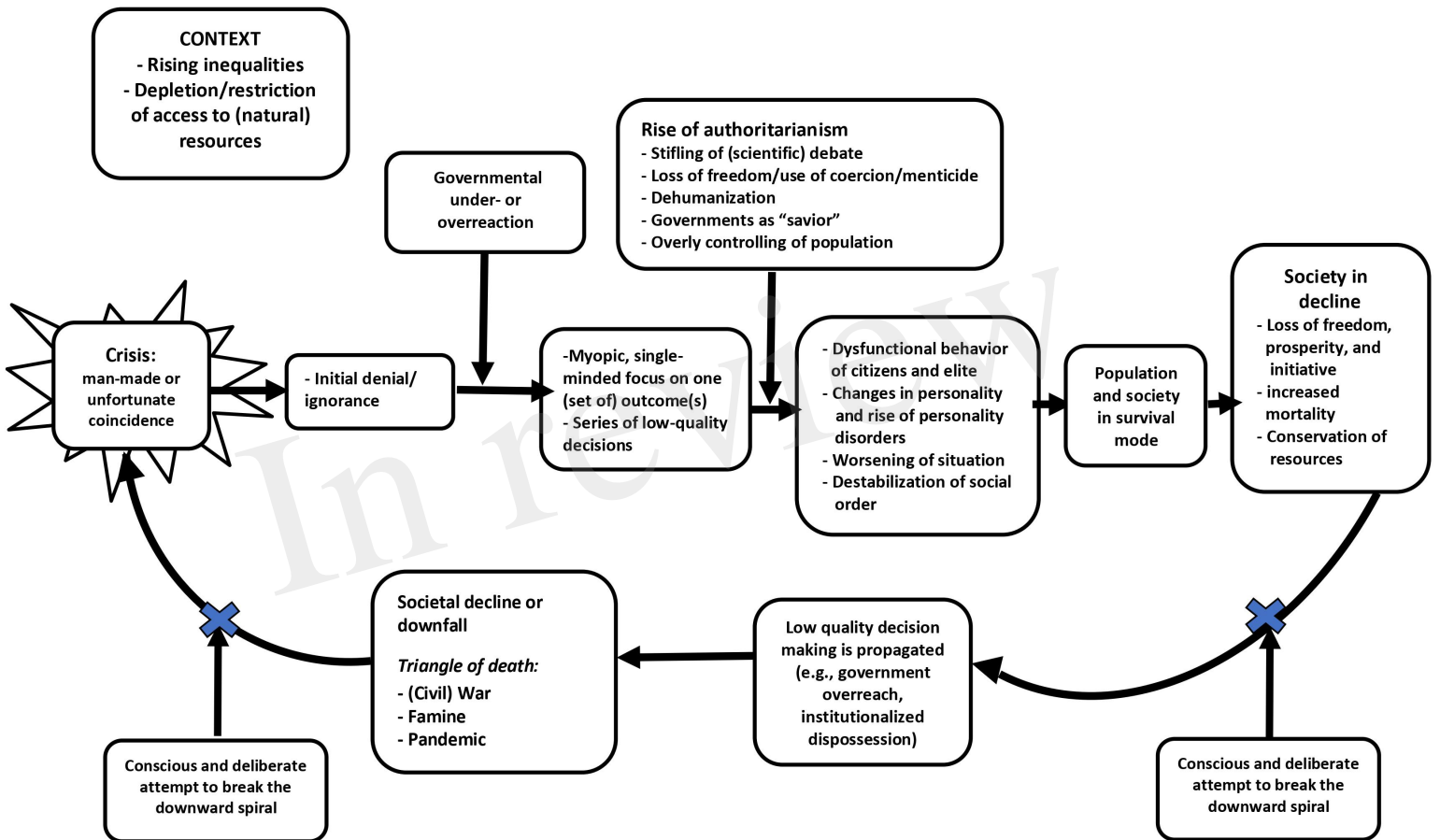


Figure 1: Death Spiral Effect: Downward spiral of societies and/or groups in decline

Figure 3.JPEG

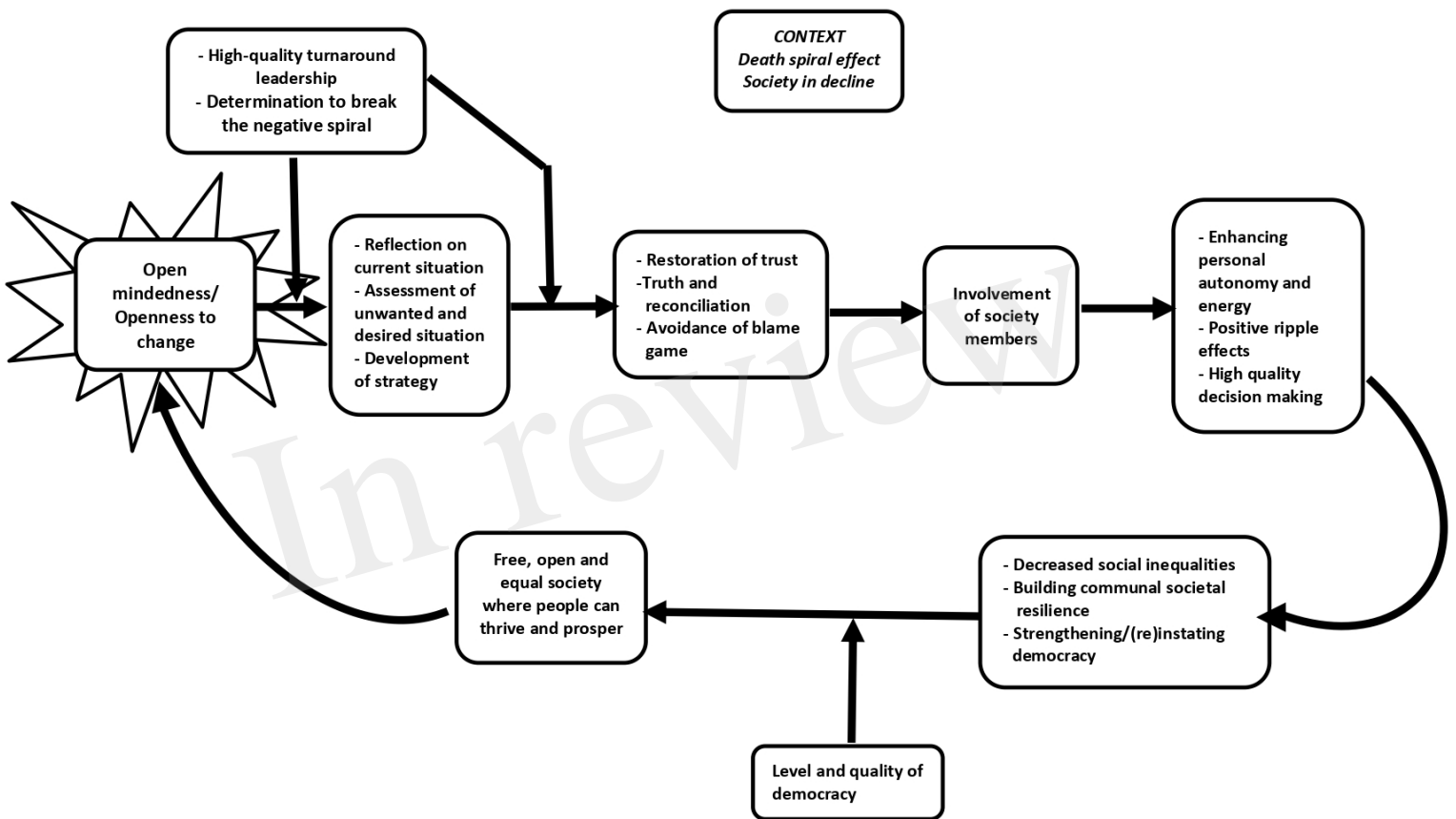


Figure 3. Upward spiral breaking the Death Spiral: From societal decline to societal flourishing