



MARTIN-LUTHER-UNIVERSITY HALLE-WITTENBERG

Faculty of Law and Economic Sciences
Chair of Economic Ethics
Prof. Dr. Ingo Pies

Ethics and Economics of Institutional Governance

*Lecture 9
Winter Term 2025/26*

Overview

Ethics and Economics of Institutional Governance: 14 Lectures (L)

Introduction (L 1)

1. The Ordonomic Approach (L 2 + 3)
2. The Social Structure of Modern Society (L 4 + 5)
3. The Semantics of Modern Society (L 6)
4. Societal Learning Processes for the Reciprocal Adaptation of Social Structure and Semantics (L 7 + 8 + 9)
5. Case Study on Climate Policy (L 10 + 11)
6. Applications: The Ordonomic Line of Argumentation (L 12 + 13)

Summary and Outlook (L 14)



What have we learned?

The most important lessons of the eighth lecture are:

- If you halve an act of exchange and separate the two sides of give and take, you can no longer distinguish this (win-win) exchange from a (win-lose) robbery.
- If one looks at a mutual insurance arrangement not ex ante, but ex post, one sees only a redistributive effect that categorically ignores the reciprocity of give and take.
- The mental model of redistribution propagates the tradeoff idea of winners and losers – and creates resistance to the expansion, but also to the reform of social policy arrangements.
- The mental model of redistribution ignores the fact that solidarity is based on reciprocity.
- The perspective of reaction analysis can be used to identify the misincentives that arise when you want to help people in need. These misincentives must always be taken into account – and can be corrected by appropriate governance measures.
- The perspective of interaction analysis identifies social dilemmas that can be overcome by a wise social policy, in full analogy to a wise legal policy.
- Baumol's cost disease makes an important contribution to explaining why industrial goods are continuously becoming cheaper, while personal services are becoming more and more expensive.
- It also helps understanding that many people – directly or indirectly – benefit from the productivity gains of economic innovation: the social diffusion effects of new knowledge are more comprehensive than is generally known.
- The welfare state and the market economy are complementary institutions.

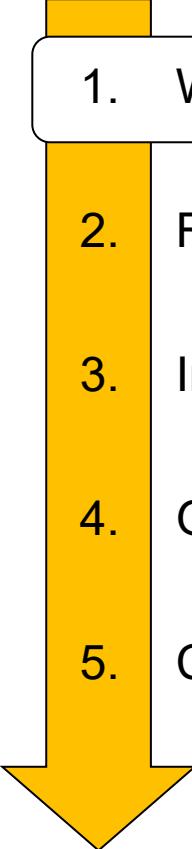


Structure of Last Lecture but One

1. Tradeoff thinking as a problem
2. What triggers tradeoff thinking in the environmental field?
3. Reaction analysis: Deconstruction of the perpetrator-victim scheme
4. Interaction Analysis: The consumers' dilemma
5. Growth analysis: Environmental protection through innovation
6. Sustainability Semantics
7. Material for David Deutsch (2011), Chapters 9 and 17

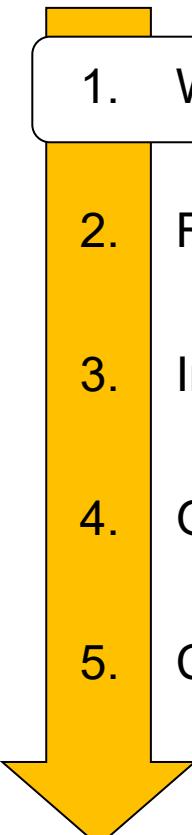


Structure of Last Lecture

- 
1. What triggers tradeoff thinking in the social field?
 2. Reaction analysis: possible misconduct due to misincentives
 3. Interaction analysis: The dilemma of the insured
 4. Growth Analysis: Baumol's Cost Disease
 5. Case Study: Kidney transplantation



Structure of Today's Lecture

- 
1. What triggers tradeoff thinking in the technology sector?
 2. Reaction analysis: On the criticism of the precautionary principle
 3. Interaction analysis: The dilemma of innovators
 4. Growth analysis: On the diffusion of innovation effects
 5. Case Study: Glyphosate

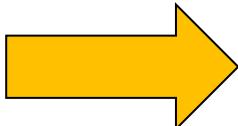


Neophobia?

There is a widespread fear of the dangers of technological progress: of foods containing poisons; of medicines that make you sick; of the long-term effects of nuclear power and its radiation exposure; of the manipulation possibilities of genetic engineering and biotechnology; of the totalitarian dangers of modern communication and surveillance technologies, etc.

Against this background, the **precautionary principle** aims to shift the burden of proof:

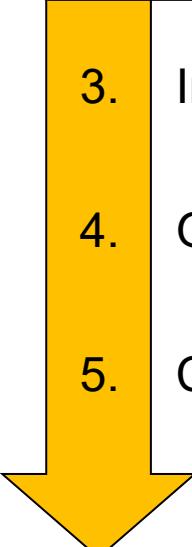
- Proponents of the **strong variant** of the precautionary principle advocate a **reversal** of the burden of proof: innovators should demonstrate in advance that their innovation does not cause any harm.
- Proponents of the **weak variant** of the precautionary principle advocate a **reduction** in the burden of proof: innovators should react cautiously (and, if necessary, delay, correct or withdraw their innovation), even if it is not yet clear with certainty that innovation will (or can) cause serious damage.



What is to think of this?



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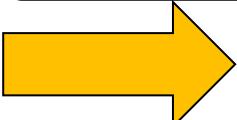


The Strong Variant of the Precautionary Principle

Reversing the burden of proof means that innovators are being asked to do something they systematically cannot do: it is impossible to prove the non-existence of a danger. In this respect, a utopian standard is propagated here that can never be fulfilled – and can do much damage in public discourse.

There is a fundamental asymmetry between verification and falsification:

- One can (provisionally) refute a hypothesis by showing that empirical evidence speaks against the presumed existence of an effect.
- However, the non-existence of an effect can never be proved. ("The absence of evidence is no evidence of absence.")
- Example: There are (demonstrably!) white swans and black swans. Zebra swans, however, have not been spotted (yet?). If one wants to prove that there are no black-and-white striped Zebra swans, purely theoretical considerations are not enough. Empirical research is needed. However, it can always be objected to that one did not search in the right place at the right time. Therefore, it makes sense to assign the burden of proof in such a way that one has to show Zebra swans if one wants to switch from presumed non-existence to existence.

 Important conclusion: Against the strong variant of the precautionary principle, we can formulate the upstream argument that it is categorically incapable of guiding social innovation processes in a meaningful way. It would just bring them to a standstill. This is an ill-advised governance heuristics.



The Weak Variant of the Precautionary Principle

Reducing the burden of proof for any innovation regulation requires a scientifically based risk analysis, i.e. a probability-weighted estimate of costs and benefits. Reason: The precautionary principle must be consistently applicable to itself.

The applicability of the precautionary principle to itself is a **logical criterion for consistency**, which is essential for an effective regulation of risks: a “conditio sine qua non”.

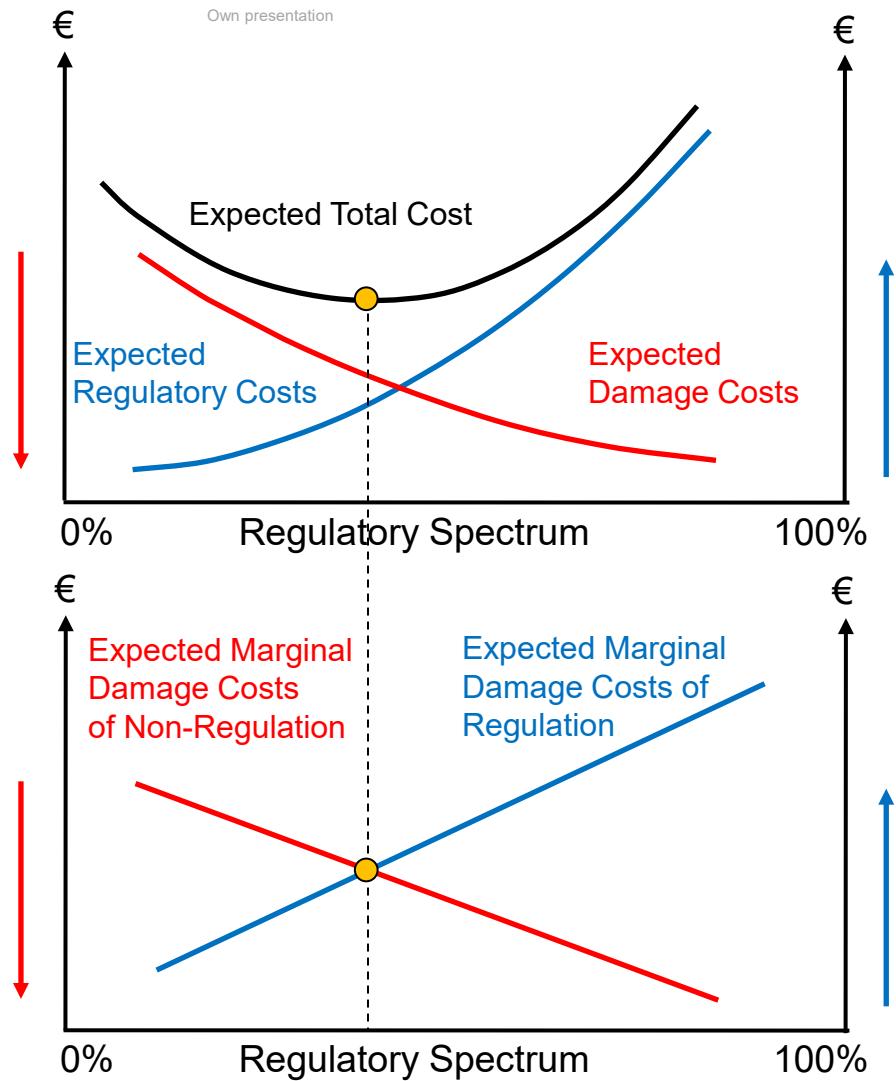
- If we want to regulate a particular innovation with reference to the precautionary principle, then it is necessary to examine whether this **regulation itself** (i.e. a ban, a delay or a prescribed change) is compatible with the precautionary principle.
- Reason: **Each action has opportunity costs**. Therefore, regulation can also pose risks. Consequently, we must always weigh up pros and cons. Otherwise, we will end up in situations where the precautionary principle (in its weak variant) contradicts itself, because with respect to innovation it calls for regulation and with respect to this regulation it calls for desistance.



Important conclusion: Against the weak variant of the precautionary principle, we can formulate the upstream argument that it is only suitable to regulate societal innovation processes in a meaningful way if it can be applied to itself. Otherwise, paradoxes will arise.



The Perspective of Reaction Analysis (I)



Example: Approval of a drug to save human lives (= Minimize loss of life years)

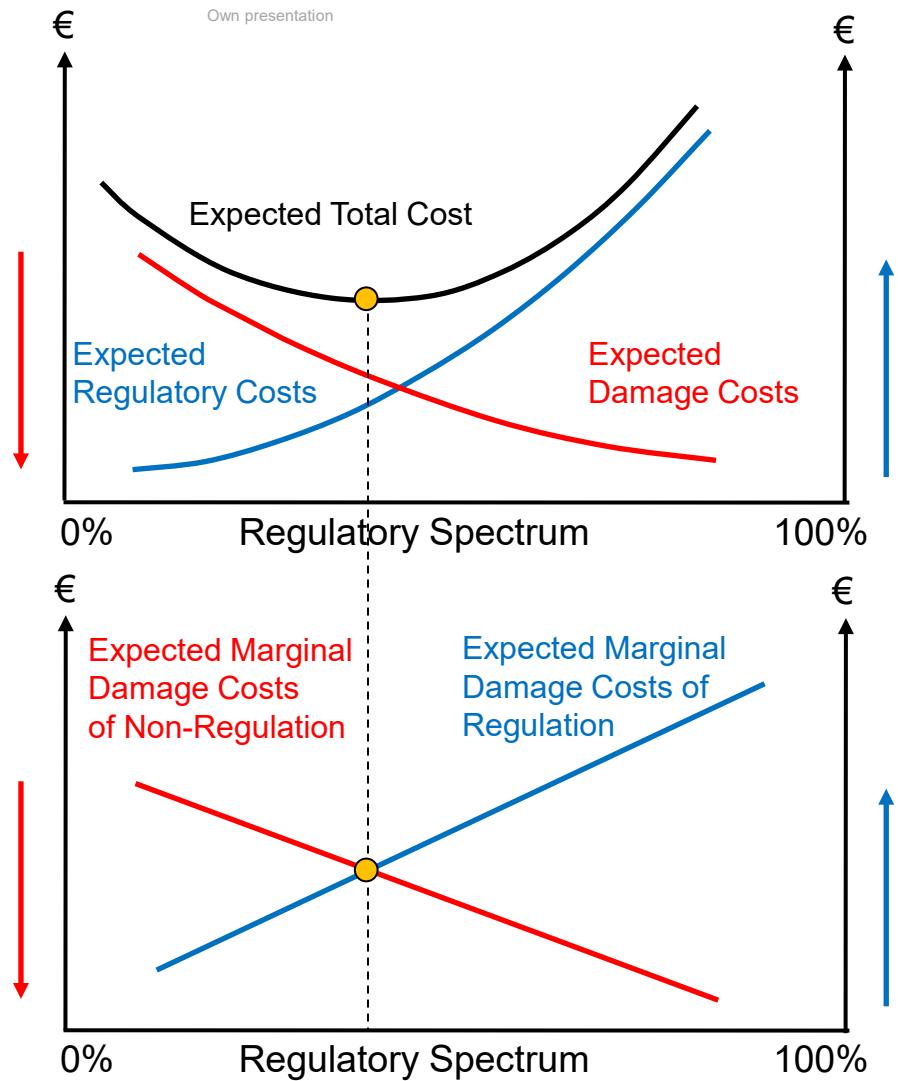
- Regulation can **reduce the probability that patients die** as a result of the drug.
- However, regulation delays approval. As a result, **people who could survive with the drug die**.
- A smart innovation policy must have both effects in mind! – Minimize Total Expected Costs!

Core insight: You should reach the optimum from both sides: from left to right as well as from right to left.

In the Corona crisis, there are special effects that indicate it might be optimal to drastically shorten the traditional authorization procedures. (Both blue curves are massively moved upwards!)



The Perspective of Reaction Analysis (II)



Consistency means that you get the same result, regardless of whether you walk through the chart from left to right or vice versa from right to left.

Consequently, the expected costs and benefits of an authorisation must be compared with the expected costs and benefits of non-authorisation (or delayed authorisation).

If this is not done, one falls into logical circles and no longer has a clear orientation for a societally reasonable innovation policy.

In this respect, even with the weak variant of the precautionary principle, semantic misinterpretations can lead to serious governance deficits.



As a Reminder – David Deutsch: Optimism (IV)

In his book "The Beginning of Infinity", David Deutsch (2011) explains how science works. He points to the similarity of naive forms of optimism and pessimism – and criticizes the precautionary principle.

David Deutsch



<https://www.thersa.org/globalassets/speakers/david-deutsch.jpg>

„But blind pessimism is a blindly optimistic doctrine. It assumes that unforeseen disastrous consequences cannot follow from existing knowledge too (or, rather, from existing ignorance). Not all shipwrecks happen to record-breaking ships. Not all unforeseen physical disasters need be caused by physics experiments or new technology. But one thing we do know is that protecting ourselves from *any* disaster, foreseeable or not, or recovering from it once it has happened, requires knowledge; and knowledge has to be created. The harm that can flow from any innovation that does not destroy the growth of knowledge is always finite; the good can be unlimited. There would be no existing ship designs to stick with, nor records to stay within, if no one had ever violated the precautionary principle.“
(p. 201 f., emphasis in original)



As a Reminder – David Deutsch: Optimism (V)

In his book "The Beginning of Infinity", David Deutsch (2011) explains how science works. He criticizes the precautionary principle as follows:

David Deutsch



<https://www.thersa.org/globalassets/speakers/david-deutsch.jpg>

„As we look back on the failed civilizations of the past, we can see that they were so poor, their technology was so feeble, and their explanations of the world so fragmentary and full of misconceptions that their caution about innovation and progress was as perverse as expecting a blindfold to be useful when navigating dangerous waters. Pessimists believe that the present state of our own civilization is an exception to that pattern. But what does the precautionary principle say about *that* claim? Can we be sure that our present knowledge, too, is not riddled with dangerous gaps and misconceptions? That our present wealth is not pathetically inadequate to deal with unforeseen problems? Since we cannot be sure, would not the precautionary principle require us to confine ourselves to the policy that would always have been salutary in the past – namely innovation and, in emergencies, even blind optimism about the benefits of new knowledge?“ (p. 204, emphasis in original)



As a Reminder – David Deutsch: Optimism (VI)

In his book "The Beginning of Infinity", David Deutsch (2011) explains how science works. He considers the precautionary principle to be untenable:

David Deutsch



„[I]n the case of our civilization, the precautionary principle rules itself out. Since our civilization has not been following it, a transition to it would entail reigning in the rapid technological progress that is under way. And such a change has never been successful before. So a blind pessimist would have to oppose it on principle.“ (p. 204)

<https://www.thersa.org/globalassets/speakers/david-deutsch.jpg>



As a Reminder – David Deutsch: Optimism (VII)

In his book "The Beginning of Infinity", David Deutsch (2011) explains how science works. He considers the precautionary principle paradoxical:

David Deutsch



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„There is a closed loop of ideas here: on the assumption that knowledge is not going to grow, the precautionary principle is true; and on the assumption that the precautionary principle is true, we cannot afford to allow knowledge to grow. Unless a society is expecting its own future choices to be better than its present ones, it will strive to make its present policies and institutions as immutable as possible. Therefore Popper's criterion can be met only by societies that expect their knowledge to grow – and to grow unpredictably. And, further, they are expecting that if it did grow, *that would help.*“
(p. 212, emphasis in original)



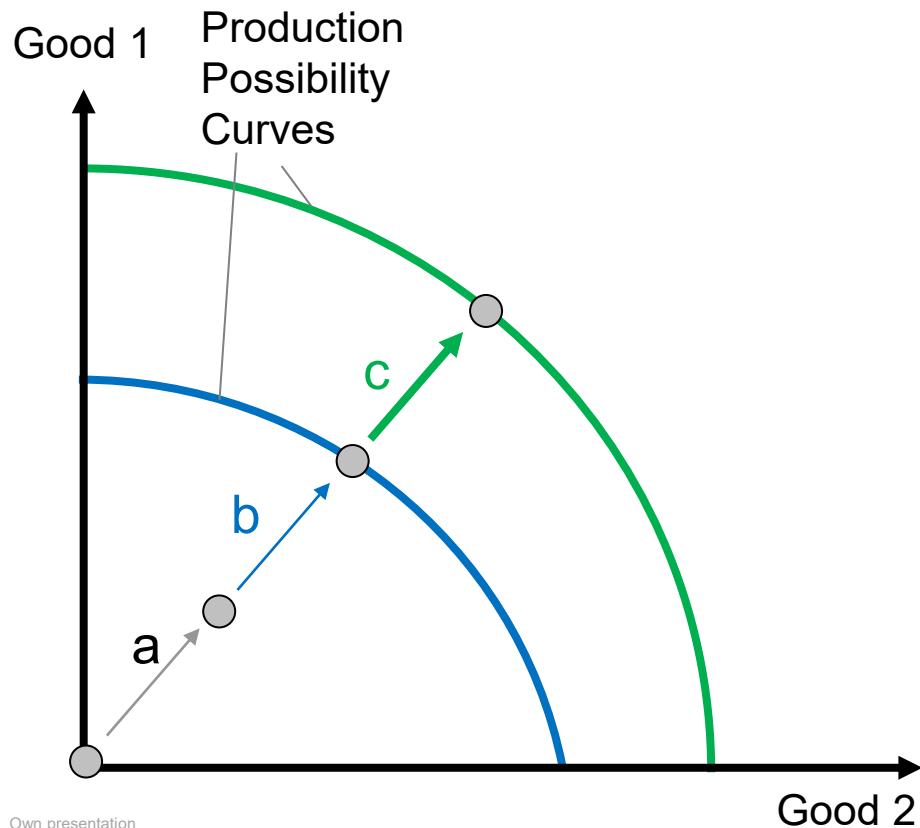
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Knowledge Markets are Virtual Markets

Markets for knowledge are crucial for the growth of a society's potential. However, they must first be set in motion by institutions.



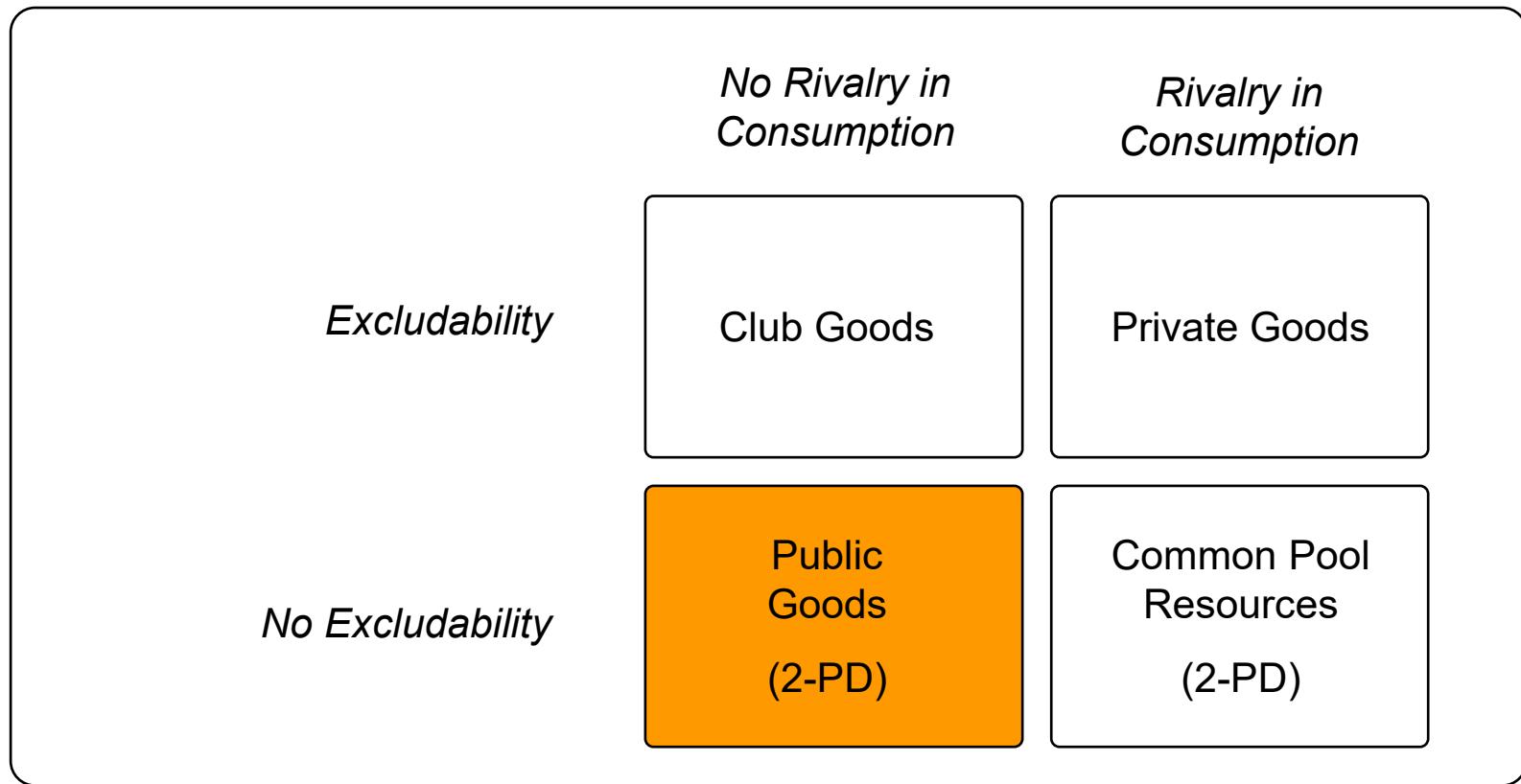
Three types of markets can be distinguished:

- a) Robust markets (e.g. elementary spot markets for goods and services): self-sustaining
- b) Precarious markets (e.g. insurance or credit markets): institutions must support them. Only these markets ensure that a society's opportunities are fully exploited
- c) Virtual markets (markets for knowledge): They require institutional support. These markets are crucial for the **growth of opportunities** (and living standards)!



Knowledge is Basically a Public Good

The generation of knowledge faces a social dilemma (2-PD) (*free-rider problem*). Therefore, special institutions are needed for the production of knowledge, so that one does not end with collective self-harm: with a rational inefficiency.



Eigene Darstellung



Innovations: Private Costs and Socialized Benefits

The economic case for innovation policies:

Socialized Benefits: The social gains of successful innovation are usually much higher than the individual gains of the innovator.

Private Costs: Only a small proportion of R&D efforts result in innovation. And only a fraction of this is successful in the market. The costs of unsuccessful R&D and innovation are usually borne by the innovator alone.



In this scenario, from a societal point of view, the individually optimal
innovation efforts are too low.

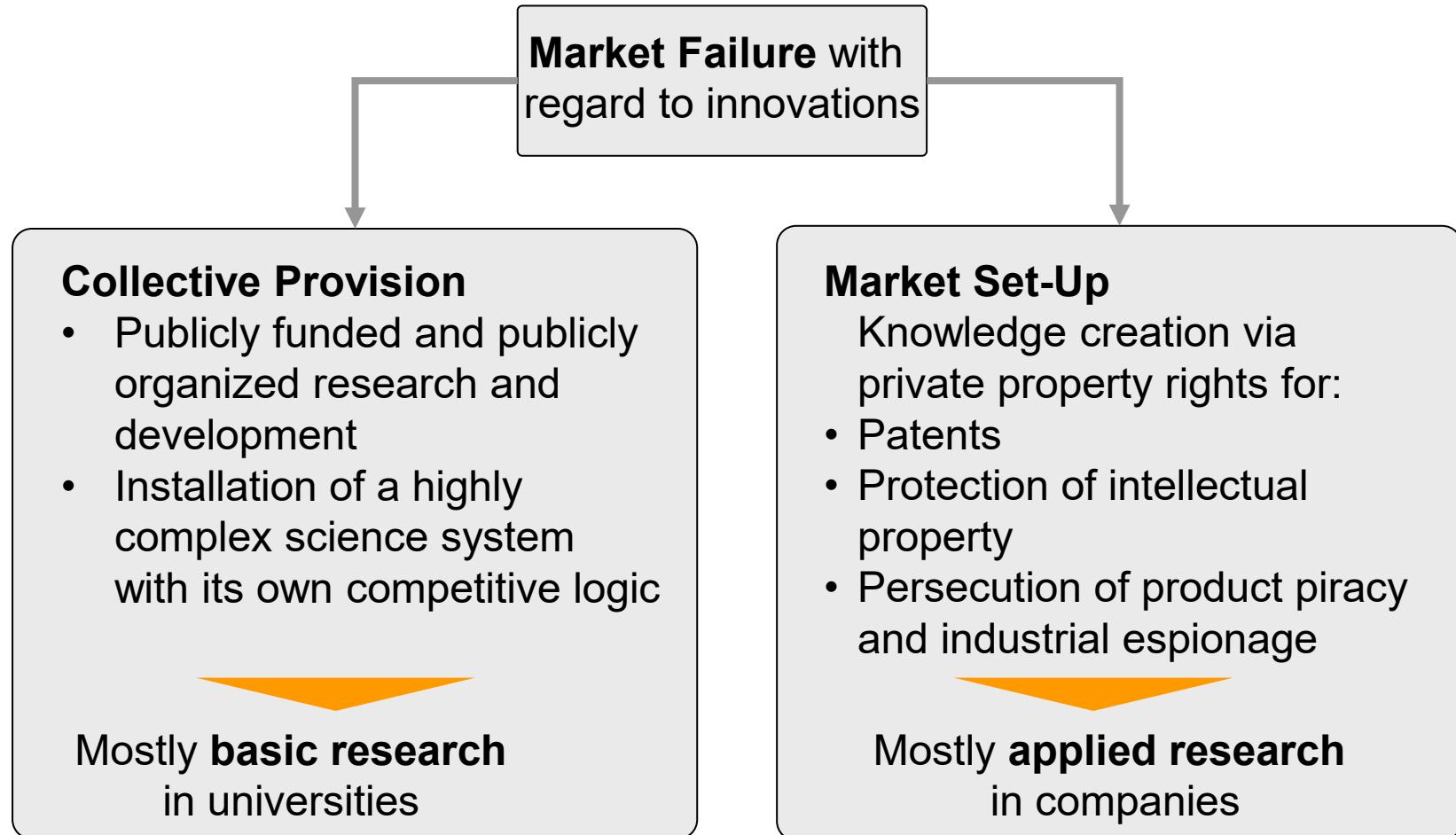


Institutions are necessary to bring individual interest closer to the collective interest.



Strategies for Dealing with this Problem

In order to solve this problem of knowledge provision, two governance strategies are generally applied: collective funding of provision and/or institutionally setting up knowledge markets.



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The Same Dilemma also Arises in Companies

Managers, like all other people, are basically risk-averse. Furthermore, they invest most of their human capital in a company-specific way. Metaphorically speaking: All eggs are in one basket. That is why special precautions are needed to make managers – in the societal interest! – to be as risk-neutral (and thus as innovative) as possible. This is particularly true of the various levels of management in large organizations.

Example:

A recent empirical case study finds that within a large company, junior management underperforms the CEO's risk propensity by an average of 32%. The lower management levels are risk-averse!

The authors (Lavallo et al. 2020) draw the following conclusion from this:

„This company could have improved its performance by nearly a third simply by eliminating its own, self-imposed RAT [risk-aversion tax]. It did not need to develop exciting new opportunities, sell a division, or shake up management; it needed only to make investment decisions in accordance with the CEO's risk tolerance rather than that of junior managers.“



Key Statements of the Study (I)

Source: Lavello et al. (2020), <https://hbr.org/2020/03/your-company-is-too-risk-averse>

Test question:

„You are considering a \$100 million investment that has some chance of returning, in present value, \$400 million over three years. It also has some chance of losing the entire investment in the first year. What is the highest chance of loss you would tolerate and still proceed with the investment?“

General empirical finding:

„A risk-neutral manager would be willing to accept a 75% chance of loss and a 25% chance of gain; one-quarter of \$400 million is \$100 million, which is the initial investment, so a 25% chance of gain creates a risk-neutral value of zero. Most of the surveyed managers, however, demonstrated extreme loss aversion. They were willing to accept only an 18% chance of loss, much lower than the risk-neutral answer of 75%.“

Conjecture:

„CEOs are evaluated on their long-term performance, but managers at lower levels essentially bet their careers on every decision they make—even if outcomes are negligible to the corporation as a whole.“



Key Statements of the Study (II)

Source: Lavello et al. (2020), <https://hbr.org/2020/03/your-company-is-too-risk-averse>

Theoretical background:

„In economic theory, unless a failed investment would trigger financial distress or bankruptcy, companies should aim to be risk-neutral, because investors can diversify risk across companies. Pure risk neutrality is unrealistic, of course, even for CEOs. Like the rest of us, they don't want to lose their job over one bad, very large investment. But for investments that don't threaten the firm's viability, CEOs tend to be ... relatively risk-neutral, not only because they consider the size of the investments relative to the company's resources but also because they recognize that the overall risk of a diversified portfolio is lower than the average risk of individual projects.“

The central question for governance (from the point of view of the owners and society):
„How do we change the practices and incentives around investment decisions so that managers become less risk-averse? To put it more bluntly, how do we ensure that managers don't make decisions on the basis of personal (or local) consequences should their investments fail?“

Possible measures:

„(1) **Make risky decisions in batches.** ... (2) **Bring risk out into the open.** ... (3) **Make risk less personal.**“ (emphasis in original)



On the Societal Interest

Innovation leads to new products (= new options for providing benefits) and / or lower costs (= resource savings). Due to competition, the lion's share of this value added is transferred from companies to their interaction partners: to customers in the form of lower prices (and more attractive products) and to employees in the form of higher wages (and more attractive working conditions). This increases the standard of living of broad sections of the population.



<http://www.listal.com/viewimage/796569>

Ludwig Erhard already referred to the societal diffusion effect of competition:

„Via competition a socialization of progress and profit, in the best sense of the word, is achieved and, in addition, the personal pursuit of performance is kept alive.“

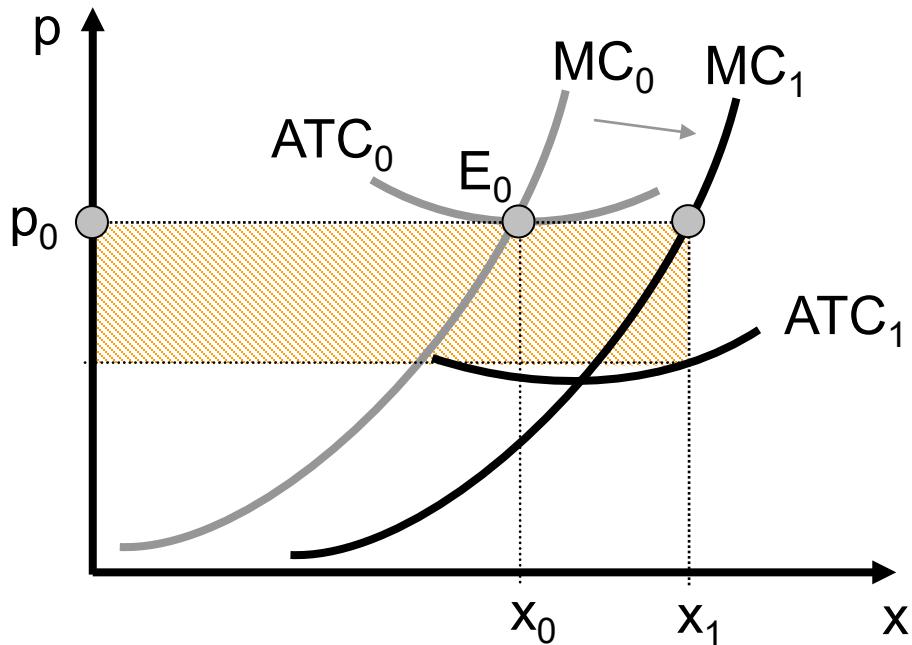
Ludwig Erhard (1957, 1964): Wohlstand für alle, p. 8, emphasis in original.

Today, we can verify this insight with the help of formal models.



Innovations in Polopoly: Short-Run Analysis

In a market with perfect competition, an innovator can achieve a short-term innovation gain.



Point of Departure: all companies produce in the minimum of ATC_0 . Here the market price equals p_0

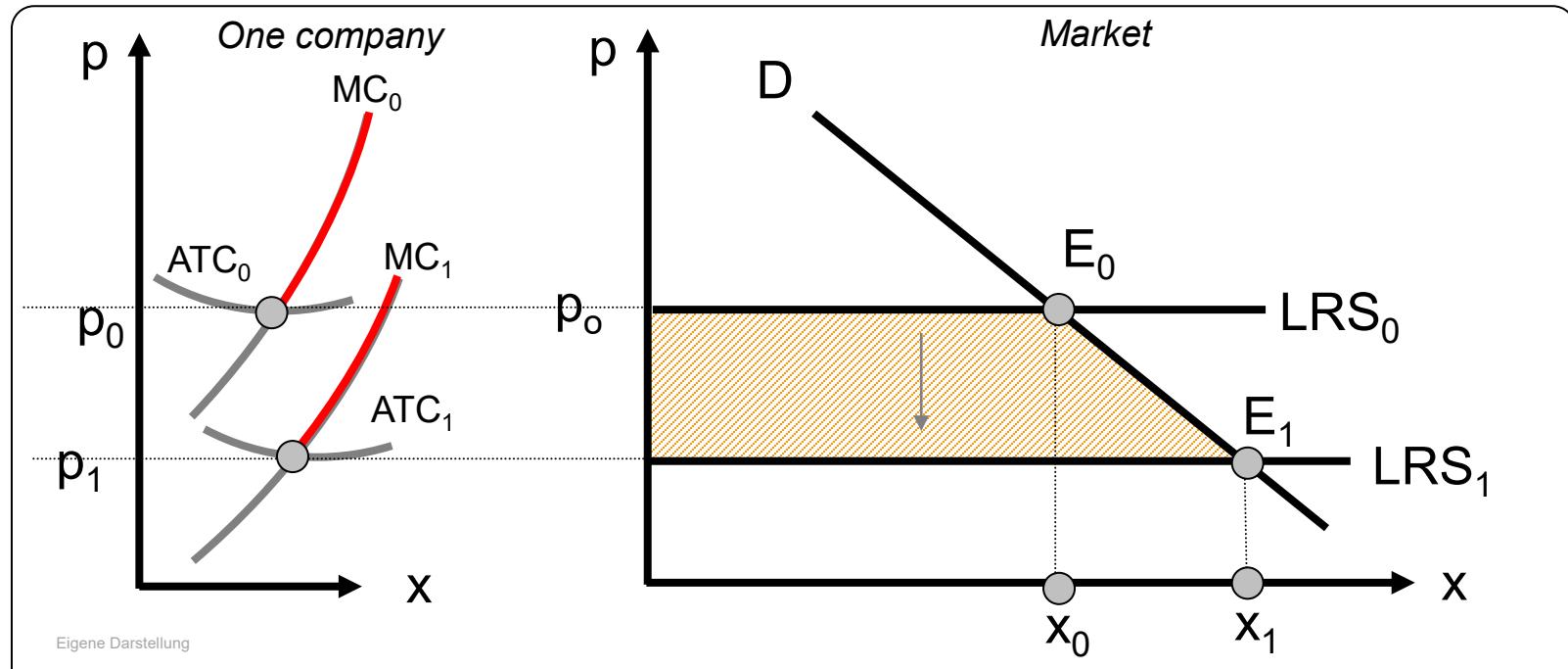
Innovation: Company A introduces cost-cutting technology: $MC_0 \rightarrow MC_1$; $ATC_0 \rightarrow ATC_1$;

The innovator can achieve a **short-term innovation gain** (hatched area) because he can produce more (at a given price) at a lower cost ($x_0 \rightarrow x_1$).



Innovations in Polopoly: Long-Run Analysis

*In a market with perfect competition, no innovation rent can be achieved in the long term.
Reason: all other companies imitate the innovator.*



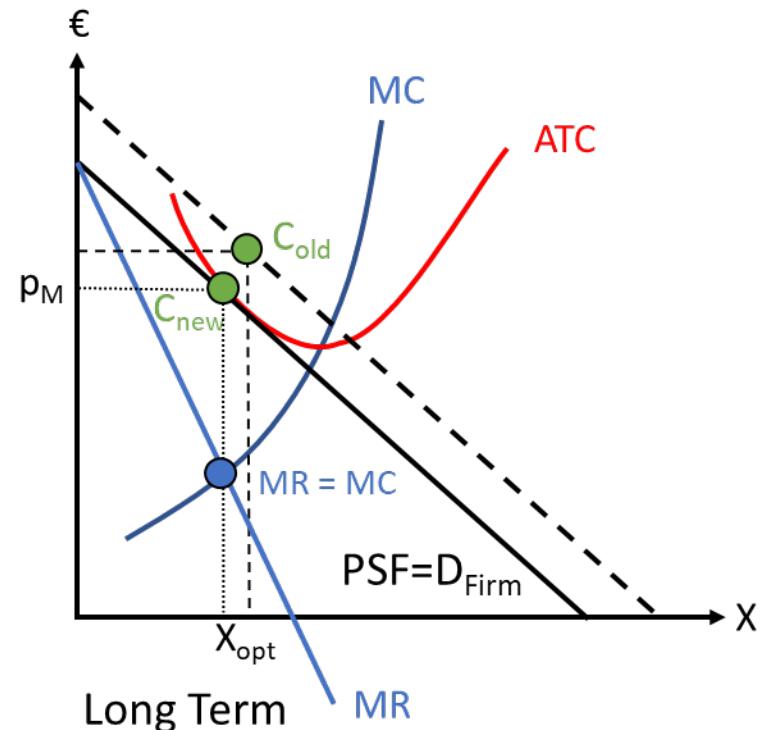
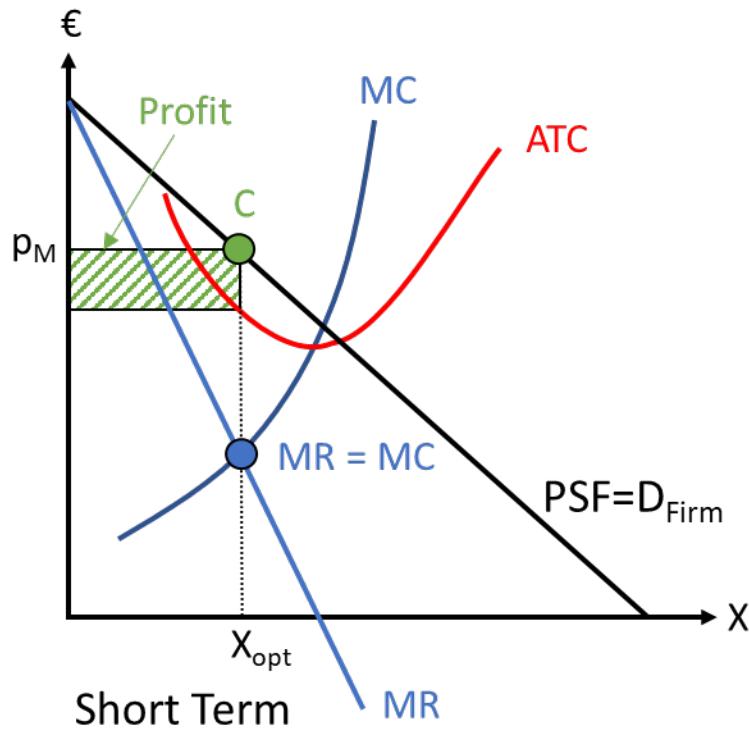
Long-term effects: imitation of innovation! Shift of long-run supply: $LRS_0 \rightarrow LRS_1$

- Long-Run market price equals the minimum of ATC_1
- Consumer Rent: increases by the hatched area.
- Producer Rent: long-term reduction back to zero.



Monopolistic Competition ($C = \text{Cournot Point}$)

The same considerations apply analogously to the market form of monopolistic competition, because here, too, zero profit is the long-term equilibrium condition, so that higher marginal yields and / or lower marginal costs are passed on to consumers in the long run.



Oligopolistic Competition

When viewed statically, oligopolies appear to be a problem because they can reap a part of consumer rent on a permanent basis. But when viewed dynamically, oligopolistic competition is the real engine for innovation.

William J. Baumol



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„In today’s economy, many oligopolistic firms wield *innovation* as their main battle weapon, using it to wage both offensive and defensive campaigns against competitors. The result is precisely analogous to an arms race, in which two countries, each fearing attack from the other, feel it is necessary to match the other country’s military spending. Similarly, two competing firms, each fearing the other will outspend it in developing and acquiring the battle weapons of their industry, are driven to conclude that not only maximization of profit (or minimization of loss), but their very existence depends on matching their rivals’ efforts and spending on the innovation process. Because these giant warring firms do not dare to relax their innovation activities, a constant stream of innovations can be expected to appear in the economies in which they operate.“

Baumol (2010): The Microtheory of Innovative Entrepreneurship, Princeton University Press, p. 28, emphasis in original



Further Food for Thought

A CALCULATION OF THE SOCIAL RETURNS TO INNOVATION

Benjamin F. Jones
Lawrence H. Summers

Working Paper 27863
<http://www.nber.org/papers/w27863>
2020

ABSTRACT

This paper estimates the social returns to investments in innovation. The disparate spillovers associated with innovation, including imitation, business stealing, and intertemporal spillovers, have made calculations of the social returns difficult. Here we provide an economy-wide calculation that nets out the many spillover margins. We further assess the role of capital investment, diffusion delays, learning-by-doing, productivity mismeasurement, health outcomes, and international spillovers in assessing the average social returns. Overall, our estimates suggest that the social returns are very large. Even under conservative assumptions, innovation efforts produce social benefits that are many multiples of the investment costs.

AN ECONOMIC VIEW OF CORPORATE SOCIAL IMPACT

Hunt Allcott
Giovanni Montanari
Bora Ozaltun
Brandon Tan

Working Paper 31803
<http://www.nber.org/papers/w31803>
2023

ABSTRACT

The growing discussions of impact investing and stakeholder capitalism have increased interest in measuring companies' social impact. We conceptualize corporate social impact as the welfare loss that would be caused by a firm's exit. To illustrate, we quantify the social impacts of 74 firms in 12 industries using a new survey measuring consumer and worker substitution patterns combined with models of product and labor markets. We find that consumer surplus is the primary component of social impact (dwarfing profits, worker surplus, and externalities), suggesting that consumer impacts deserve more attention from impact investors. Existing ESG and social impact ratings are essentially unrelated to our economically grounded measures.

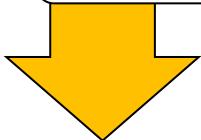
Allcott et al (2023; p. 28): „A central takeaway from our analysis is that consumer surplus is the primary driver of corporate social impact. This suggests that impact investors should consider devoting more attention to firms that deliver more consumer surplus, especially for low-income people. This also connects to the long discussion, dating at least to Friedman (1970), of what firms should try to maximize. Our estimates suggest that the key to social impact is to do what many firms are already trying to do as they maximize profits: make more differentiated products that more consumers want to buy.“



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Public Scandalization of Glyphosate



foodwatch
die essensretter

https://landarzt.files.wordpress.com/2010/03/foodwatch-logomitclaimrgb_21cm300dpi_ger.jpg



Public Calls for Prohibition

Media fuels fear of weedkiller glyphosate, and NGOs call for a blanket ban:



<https://1.bp.blogspot.com/-KJ3QBnbxFwg/Vs8eoV3NyI/AAAAAAAIPU/KNOKeyeVI-Y/s1600/Reinheitsgebot2.jpg>

Focus online asks on 25.02.2016:
„Krebs-Risiko Glyphosat:
Dürfen wir jetzt kein Bier mehr
trinken?“

Odenwald (2016)



<https://blog.campact.de/wp-content/uploads/2015/05/glyphosat-kampagne-weitere-grafiken-facebook-post-1200-630-upload-1200x630.jpg>

The German CSO „BUND“ calls:
„Glyphosat verbieten, Mensch und
Umwelt schützen!“

BUND (2016).



Warning of Glyphosate in Beer

**Glyphosat und
Malz - Gott
erhalt's!**



Netzfrauen.org

<https://www.bing.com/images/search?view=detailV2&ccid=9AJUQ5Rn&id=D1A99EC6AF4FAB95A6CC5E63E6333A99DB0350D6&ithid=OIP-9AJUQ5RnJMJGYu62SR1YWhHN&q=glyphosat+in+Muttermilch&simid=608044565222590754&selectedIndex=61>



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Scientific Status on Glyphosate

The BfR and numerous scientific studies classify glyphosate as safe.



„The lethal doses of glyphosate and table salt are in the same dimension“

Andreas Hensel – President BfR

Hensel (2016)

J. Verbr. Lebensm. (2015) 10:3–12
DOI 10.1007/s00003-014-0927-3

Journal für Verbraucherschutz und Lebensmittelsicherheit
Journal of Consumer Protection and Food Safety

REVIEW ARTICLE

A critical review of glyphosate findings in human urine samples and comparison with the exposure of operators and consumers

Lars Niemann · Christian Sieke ·
Rudolf Pfeil · Roland Solecki

available at SciVerse ScienceDirect

Regulatory Toxicology and Pharmacology

journal homepage: www.elsevier.com/locate/rtph

Epidemiologic studies of glyphosate and cancer: A review

Pamela J. Mink ^{a,b,*}, Jack S. Mandel ^c, Bonnielin K. Sceurman ^{b,1}, Jessica I. Lundin ^d

Research Article

Cancer Incidence among Glyphosate-Exposed Pesticide Applicators in the Agricultural Health Study

Anneclaire J. De Roos,¹ Aaron Blair,² Jennifer A. Rusiecki,² Jane A. Hoppin,³ Megan Svec,¹ Mustafa Dosemeci,² Dale P. Sandler,³ and Michael C. Alavanja²

¹Program in Epidemiology, Fred Hutchinson Cancer Research Center and the Department of Epidemiology, University of Washington, Seattle, Washington, USA; ²Division of Cancer Epidemiology and Genetics, National Cancer Institute, National Institutes of Health, Department of Health and Human Services, Bethesda, Maryland, USA; ³Epidemiology Program, National Institute of Environmental Health Sciences, National Institutes of Health, Department of Health and Human Services, Research Triangle Park, North Carolina, USA



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Andreas Hensel – President of Federal Institute for Risk Assessment

Hensel, Andreas (2016): Zwischen Wissen und Metaphysik – wo steht das Vorsorgeprinzip im Streit um die Risikobewertung des Pflanzenschutzmittelwirkstoffs Glyphosat?, in: Zeitschrift für das gesamte Lebensmittelrecht (ZLR), 43. Jahrgang, Ausgabe vom 17. August 2016, S. 447-450.



<http://media1.faz.net/ppmedia/aktuell/wissen/3359821802/1.2018235/default/andreas-hensel.jpg>

„The fact that ... Glyphosate has been found in fourteen types of beer as such is not remarkable, let alone alarming. It would have been alarming if the maximum daily amount for life had been exceeded. However, if one uses the highest values published in the media, one would have to drink 1,000 litres of beer per day in order to achieve the healthy and acceptable daily intake for glyphosate.“
(p. 448)



Paracelsus: The poisonous effect depends on the dosis

Caffeine is toxic, but ...

... in order to poison yourself,
you need to drink 78 cups of coffee
at once.

And in order to get cancer from
acrylamide (bean roasting), you would
have to drink 1,000 cups at once.

<https://www.chemicalsafetyfacts.org/dose-makes-poison-gallery/>

How many tubes of toothpaste is toxic?

X33

ChemicalSafetyFacts.org

Toothpaste: It is estimated that an oral dose of sodium fluoride that could be fatal to human adults ranges between 70-140 milligrams per kilograms of bodyweight. One 4.6 ounce tube of toothpaste contains about 152 milligrams of sodium fluoride. A person weighing 160 pounds would have to eat 33 tubes of toothpaste at once to experience toxic effects from sodium fluoride.

Info via U.S. National Library of Medicine Toxicology Data Network

How
many
shots of
espresso
is toxic?



ChemicalSafetyFacts.org

Caffeine: Fatal caffeine overdoses in adults are relatively rare and require the ingestion of a large quantity, typically in excess of 5000 milligrams. A single shot of espresso only has 64 milligrams of caffeine, meaning that a toxic dose would typically be more than 78 shots of espresso.

Info via U.S. National Library of Medicine National Institutes of Health

<https://www.chemicalsafetyfacts.org/dose-makes-poison-gallery/>

Sodium fluoride is toxic, but ...

... in order to poison yourself, you would
have to eat 33 toothpaste tubes at once.



Andreas Hensel – President of Federal Institute for Risk Assessment

*Hensel (2018) in an interview draws the following conclusion on the glyphosate debate:
„Risk assessment is not a post-factual popularity contest.“*



<http://media1.faz.net/ppmedia/aktuell/wissen/335982180/2/1.2018235/default/andreas-hensel.jpg>

„Some non-governmental organizations and their campaigns make their living on communicating highly complex issues in an under-complex way and reducing them to black or white, good or evil.“

„Fear is an excellent anchor for campaigns of all kinds, with the purpose of squeezing simplified messages into the public's heads. ... Fear is... not the right approach for politics. In this way, one also works against science.“

Hensel (2018): Interview in Schweriner Volkszeitung SVZ
<https://www.svz.de/deutschland-welt/panorama/tief-sitzende-angst-vor-der-chemie-id19141736.html>



Is Glyphosate Carcinogenic?

*On the public discussion on how glyphosate should be regulated politically:
Does the precautionary principle force us to ban dangers?*



Bildquelle: <https://www.mehr-demokratie.de/glyphosat-debatte/foodwatch/>, Zugriff am 31.01.2018

„In the case of glyphosate, renowned scientists hold diametrically opposed views with regard to the carcinogenic potential of glyphosate. We cannot resolve the researchers' dispute, but we can point out that it is precisely for such cases that the precautionary principle has been established. Therefore, in our opinion, glyphosate should not be used any further.“

Rücker, Martin (o.J.): Gespräch zu Glyphosat mit foodwatch, Interview von Mehr Demokratie e.V., online article: <https://www.mehr-demokratie.de/glyphosat-debatte/foodwatch/>, last access 31.01.2018

Martin Rücker
Managing Director of
„foodwatch“



Martin-Luther-Universität Halle-Wittenberg, Lehrstuhl für Wirtschaftsethik
Prof. Dr. Ingo Pies

Background: Two Different Assessments

IARC (2015): „*Glyphosate is probably carcinogenic to humans (Group 2A).*“
International Agency for Research on Cancer

versus

JMPR (2016): „[G]lyphosate is unlikely to pose a carcinogenic risk to humans from exposure through the diet.“

The Joint FAO/WHO Meeting on Pesticide Residues



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The Crucial Question for Reasonable Regulation

Does the precautionary principle force us to ban dangers?

No way! The precautionary principle requires a comprehensive risk analysis!

Danger Hazard Assessment

IARC (2015): „*Glyphosate is probably carcinogenic to humans (Group 2A).*“
International Agency for Research on Cancer

- Handrail
- Lighting
- Coating
- Steepness



https://www.hieber-beton.com/files/hieber-beton/bilder/produkte/Fertigteiltreppen/Treppen%20gerade/TREPPE%202_web.jpg

versus



Expected Damage Risk Assessment

JMPR (2016): „[G]lyphosate is unlikely to pose a carcinogenic risk to humans from exposure through the diet.“

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Important Additional Information about Hazards

International Agency for Research on Cancer – IARC (2015):

- Raw meat has been classified in category 2A, so it is considered "probably carcinogenic to humans" – just like glyphosate and hot drinks above 65°.
- Processed meat (e.g. sausage and ham) has been classified in category 1 and is considered to be "known to be carcinogenic to humans" – just like alcoholic beverages and tobacco.

Category 2A



Category 1



https://www.ndr.de/ratgeber/kochen/warenkunde/kaffee684_v-contentx.jpg



<https://www.kauf-per-rechnung.net/wp-content/uploads/tabak-672x372.jpg>



<https://http://www.philippinen.cc/wp-content/uploads/2015/03/Alkohol.jpg>



Hazard Analysis versus Risk Analysis?

The IARC does not claim that its own results require regulation. Rather, it claims that its own results provide an indication of where regulation needs to be examined: hazard analyses are meant to provide food for thought for engaging in risk analyses.



<https://healthclimate2018.iss.it/wp-content/uploads/2018/05/wild.jpg>

Christopher Wild
Director of the IARC

„[T]hese results are important in enabling governments and international regulatory agencies to conduct risk assessments, in order to balance the risks and benefits of eating red meat and processed meat and to provide the best possible dietary recommendations.“

Christopher Wild in: IARC (2015) Press Release No. 240

Conclusion:

Those who do not distinguish between danger and risk promote discourse failure and moral panic.



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The Call for Prohibition and Its Criticism: Practical Syllogism

We can use the practical syllogism to reconstruct the normative and positive elements of this demand. On this basis, we can then formulate a downstream argument that maintains the normative premiss and reaches a *different conclusion* on the basis of a *changed positive premiss*.

- | | |
|--------------------------|--|
| 1. Normative Premiss: | In cases of doubt, the precautionary principle must be applied |
| 2. Positive Premiss: | Whether glyphosate produces cancer is scientifically unclear. |
| <hr/> | |
| 3. Normative Conclusion: | Glyphosate should be banned as a precaution. |

- | | |
|--------------------------|--|
| 1. Normative Premiss: | In cases of doubt, the precautionary principle must be applied |
| 2. New Positive Premiss: | It is scientifically clear that glyphosate does not pose a cancer risk. |
| <hr/> | |
| 3. New Conclusion: | Glyphosate should not be banned. |



Glyphosate Ban in Germany from 2023

In many EU countries, including Germany, the course has been set for a ban on glyphosate: in September 2019, the German government decided to ban the use of glyphosate from 2023.



<https://pixabay.com/de/photos/bundeskanzleramt-bundesregierung-637999/>



pixabay



pixabay



In the US, Bayer has to Pay Indemnity in the Billions

The US legal system operates differently than in continental Europe. Contrary to the state of scientific knowledge, there was a wave of complaints. In June 2020, Bayer agreed to a settlement of nearly 11 billion U.S. dollars.



pixabay



<https://www.flickr.com/photos/conanii/1201709115>

Food for thought: What are the consequences of such legal (un)security and the cancellation of social acceptance for future innovations (and for the calculated risk premium)?



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Good News: The aspartame scandal failed...

In contrast to the glyphosate "scandal", the German media did not react in panic to the classification of aspartame as "possibly carcinogenic".



Unbelegt: Aspartam kann Krebs erregen

<https://www.mdr.de/wissen/faktencheck/faktencheck-aspartam-krebs-100.html>



Kritik an Kommunikation von WHO-Behörde

Was die Süßstoff-Warnung bedeutet

Die WHO steht nach der Krebswarnung vor einem Süßstoff in der Kritik. Anders als bei Zucker sei nicht belegt, dass Aspartam zum Krebsrisiko beitrage.

<https://taz.de/Kritik-an-Kommunikation-von-WHO-Behoerde/!5950320/>

EXPERTENEINSTUFUNG

Aspartam möglicherweise krebsfördernd – übliche Mengen wohl kein Problem

<https://www.deutsche-apotheker-zeitung.de/news/artikel/2023/07/14/aspartam-moeglicherweise-krebserregend-uebliche-mengen-wohl-kein-problem>

International Agency for Research on Cancer



Bundeszentrum für Ernährung, BZfE:
„The sugar-free sweetener aspartame is classified by the International Agency for Research on Cancer (IARC) as 'possibly carcinogenic to humans'. “

According to current knowledge, the usual consumption quantities are harmless.

[https://www.bzfe.de/service/news/aktuelle-meldungen/news-archiv/meldungen-2023/august/aspartam-als-moeglicherweise-krebserregend-eingestuft/#:~:text=\(BZfE\)%20%20%93%20Der%20zuckerfreie%20S%C3%BC%C3%9Fstoff,die%20Datenlage%20nicht%20eindeutig%20ist.](https://www.bzfe.de/service/news/aktuelle-meldungen/news-archiv/meldungen-2023/august/aspartam-als-moeglicherweise-krebserregend-eingestuft/#:~:text=(BZfE)%20%20%93%20Der%20zuckerfreie%20S%C3%BC%C3%9Fstoff,die%20Datenlage%20nicht%20eindeutig%20ist.)



Food for Thought

Source: Kohlstedt, Kurt (2016): *Tilt & Turn: Ingenious Three-in-One Window for Security, Breezes & Egress*, Online Article 30.05.2016: <https://99percentinvisible.org/article/tilt-turn-ingenuous-three-one-window-security-breezesegress/>, last access 26.10.2020.

Living in Germany, you notice a lot of small engineering innovations that make life easier, like omnidirectional wheels on shopping carts that actually work. One of these innovations in particular stands out, entirely ordinary to Germans, but extraordinary to visitors and newcomers discovering it for the first time: the tilt-and-turn window.



This window is effectively three windows in one: it serves as a fixed window, an inswing casement window and a hopper window.



Further Food for Thought

2024 Edelman Trust Barometer

P. 14

Acceptance of Innovation at Stake

Percent who say

GLOBAL 28

I reject this innovation I embrace this innovation



Green energy

13

54

Innovation success:
More enthusiasm for green energy

AI

35

30

At a crossroads:
Both resistance and enthusiasm for AI and gene-based medicine

Gene-based
medicine

34

29

GMO foods

58

14

Innovation failure:
GMO foods strongly resisted

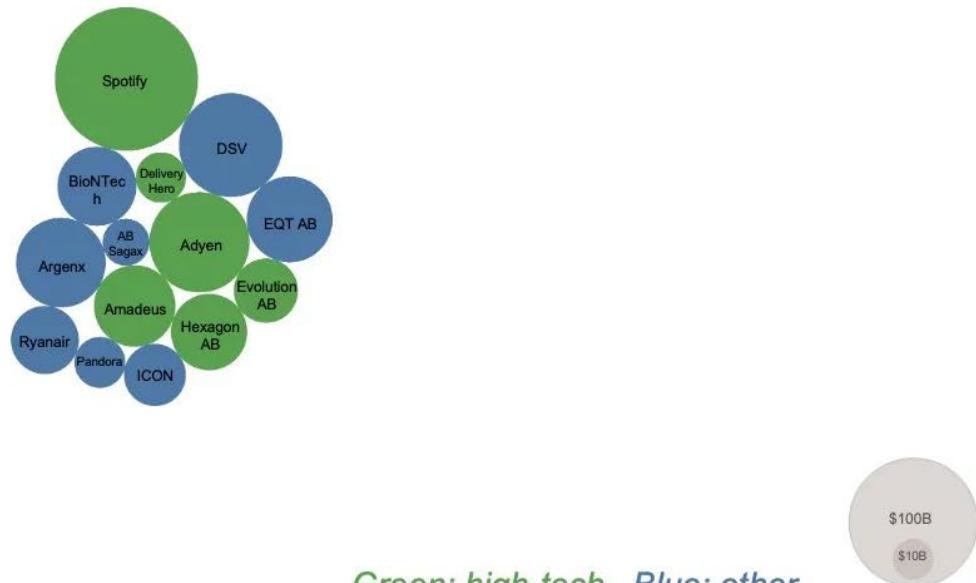


Still Further Food for Thought (I)

Quelle: McAfee (2024): A Visualization of Europe's Non-Bubbly Economy

https://geekway.substack.com/p/a-visualization-of-europees-non-bubbly?utm_source=post-banner&utm_medium=web&utm_campaign=posts-open-in-app&triedRedirect=true

Public From-Scratch EU Companies Less than 50 Years Old with \$10B+ Market Cap



Bubble area proportional to market cap

Companies grouped by HQ at time of IPO

Market cap in 2023 USD, assessed at November 26th, 2024

Green bubble indicates a company in a "tech" industry: Software, Packaged Software, Internet Software/Services, Information Technology Services, Data Processing Services, Interactive Media & Services, Internet Retail, Direct Marketing Retail, Telecommunications Equipment, Electronic Equipment/Instruments, Computer Processing Hardware, Computer Peripherals, Semiconductors, Semiconductor Equipment. Blue bubble indicates all other industries

Andrew McAfee (@amcafee), MIT

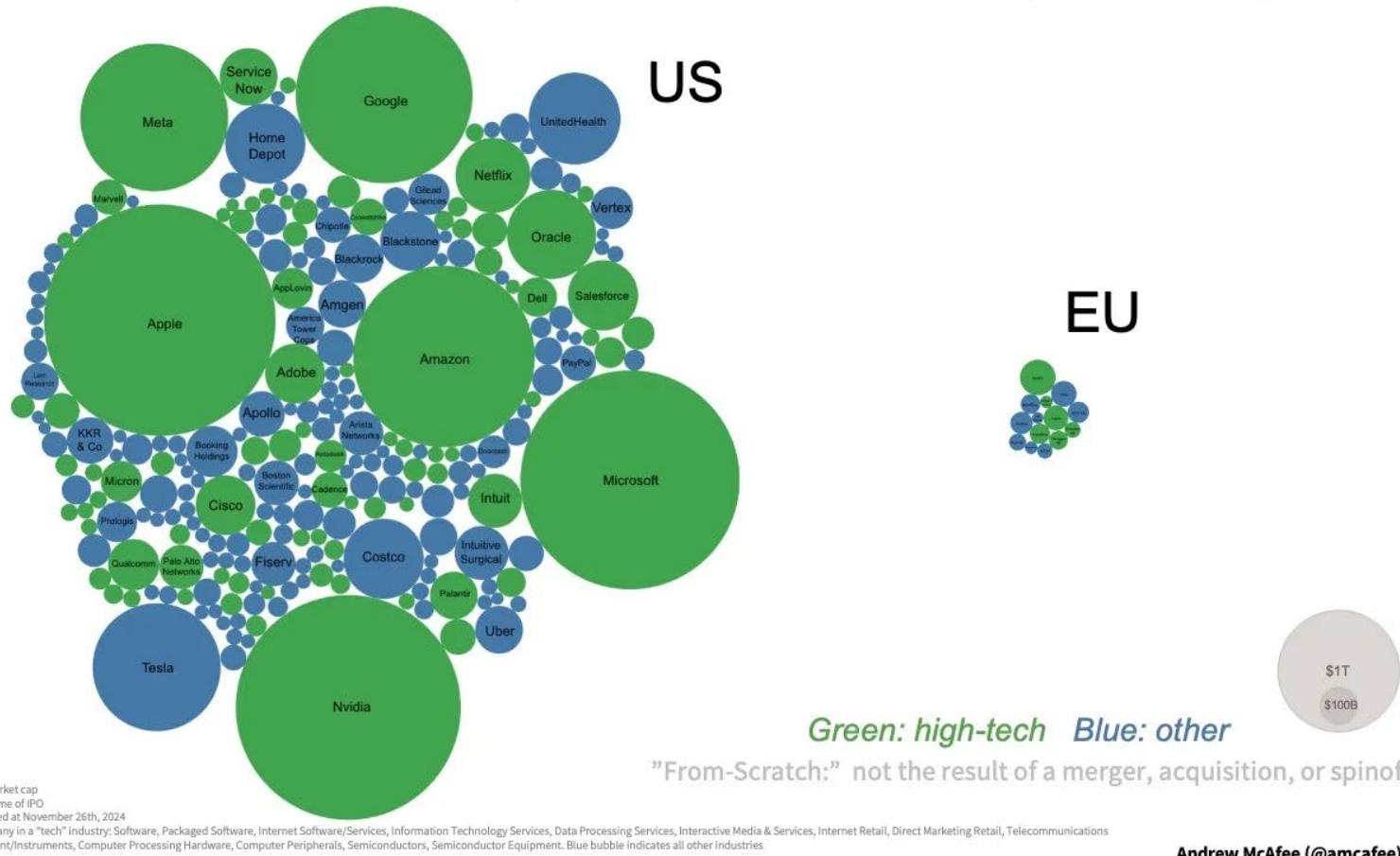


Still Further Food for Thought (II)

Quelle: McAfee (2024): A Visualization of Europe's Non-Bubbly Economy

https://geekway.substack.com/p/a-visualization-of-europe-s-non-bubbly?utm_source=post-banner&utm_medium=web&utm_campaign=posts-open-in-app&triedRedirect=true

Public From-Scratch US and EU Companies Less than 50 Years Old with \$10B+ Market Cap



Still Further Food for Thought (III)

Garicano (2024): Failure Costs

<https://www.siliconcontinent.com/p/failure-costs>

Main thesis: The high costs of failure in Europe hinder the innovative capacity and growth of companies compared to the USA.

Cost comparison: In the US, a major restructuring of a large company costs about two to four months' salary per employee, in France an average of 24 months and in Germany 30 months.

Impact on investment: Due to the high cost of failure, European companies are less inclined to invest in high-risk innovation, leading to a lack of innovation.

Example calculation: A company in California has an expected profit of 4.2 million dollars on a successful innovation, while a German company has an expected loss of 3 million dollars on the same innovation.

Structural disadvantages: European companies tend to focus on incremental improvements to existing products rather than inventing new ones because the cost of failure is higher.

Venture capital: European venture capitalists minimise their risks as a rational response to the lower expected values of investing in disruptive innovations.

Solutions: Proposals to address the problem include more flexible employment protection laws and models such as the Danish "flexicurity" model, which allows for both worker protection and corporate agility. These points illustrate how the high costs of failure affect the innovative capacity and competitiveness of European companies.



Still Further Food for Thought (IV)

Garicano (2024): The end of luxury rules

https://www.siliconcontinent.com/p/the-end-of-luxury-rules?utm_campaign=post&utm_medium=web

Luxury rules: Growth-inhibiting laws that Europe believes it can afford because it can (supposedly) rely on the protection and innovation of other countries.

Examples: Germany's decision to close nuclear power plants and the ban on fracking in Europe.

Energy policy: Europe's energy policies, such as the rapid switch to solar and wind energy without additional nuclear power plants, have led to higher energy costs and dependence on imports.

GDPR (General Data Protection Regulation) and AI (Artificial Intelligence) Act: These laws protect privacy, but they incur high costs and hinder innovation in Europe.

Defense spending: Europe's defense spending prioritizes protecting domestic industry, leading to inefficient spending.

Cultural change: Garicano argues that Europe needs to move away from luxury rules in order to become more realistic and independent.

