

# Meritocratie, middelmaat ... of andere accenten?

Enkele beschouwingen

Koenraad Debackere, 16 maart 2024



# Meritocratie, een beladen concept?

- *'We are true to our creed when a little girl born into the bleakest poverty knows that she has the same chance to succeed as anybody else ...'*—Barack Obama, inaugural address, 2013
- *'We must create a level playing field for American companies and workers.'* —Donald Trump, inaugural address, 2017
- *Conceptually and morally, meritocracy is presented as the opposite of systems such as hereditary aristocracy, in which one's social position is determined by the lottery of birth. Under meritocracy, wealth and advantage are merit's rightful compensation, not the fortuitous windfall of external events. Although widely held, the belief that merit rather than luck determines success or failure in the world is demonstrably false. This is not least because merit itself is, in large part, the result of luck. Talent and the capacity for determined effort, sometimes called 'grit', depend a great deal on one's genetic endowments and upbringing.*
- *Luck intervenes by granting people merit, and again by furnishing circumstances in which merit can translate into success. This is not to deny the industry and talent of successful people. However, it does demonstrate that the link between merit and outcome is tenuous and indirect at best.*
- *Meritocracy is the most self-congratulatory of distribution principles. Its ideological alchemy transmutes property into praise, material inequality into personal superiority.*

*(source: Robert H. Frank, Success and Luck, 2020)*

# Meritocratie, een beladen concept?

- *Amartya Sen (Nobel laureate, 2000): The idea of meritocracy has many virtues, but clarity is not one of them.*
- *Plato's (c. 428–c. 348 BC) meritocratic political theory (found primarily in the Laws, Republic, and Statesman) is similarly focused on governance. His argument for meritocracy and against democracy is simple: Managing a state is hard. It requires specific skills, like bravery, sobriety, graciousness, and love of wisdom. These skills are not found among the common people or the wealthy. If political power were entrusted to them, the “ship of state” (Republic 488a–89c) would run aground. Not to mention, the sailors—democratically-elected leaders—are always squabbling. Only a “true pilot”—a philosopher-king—can safely guide his ship to its destination. (See also, e.g., Republic 412a-e, 473c-d, and 484a ff.)*
- *Article VI of the Declaration of the Rights of Man and of the Citizen (1789) says: All citizens, being equal in the eyes of the law, shall be equally eligible to all dignities, public positions and occupations, according to their ability, and without distinction except that of their virtues and talents.*
- *Across the Atlantic, Thomas Jefferson desired a “natural aristocracy” for his new nation, in which hierarchies would reflect “virtue and talents” rather than “wealth and birth”. Indeed, Jefferson regarded this natural aristocracy as “the most precious gift of nature, for the ... government of society” (1813).*

# Meritocratie, een beladen concept?

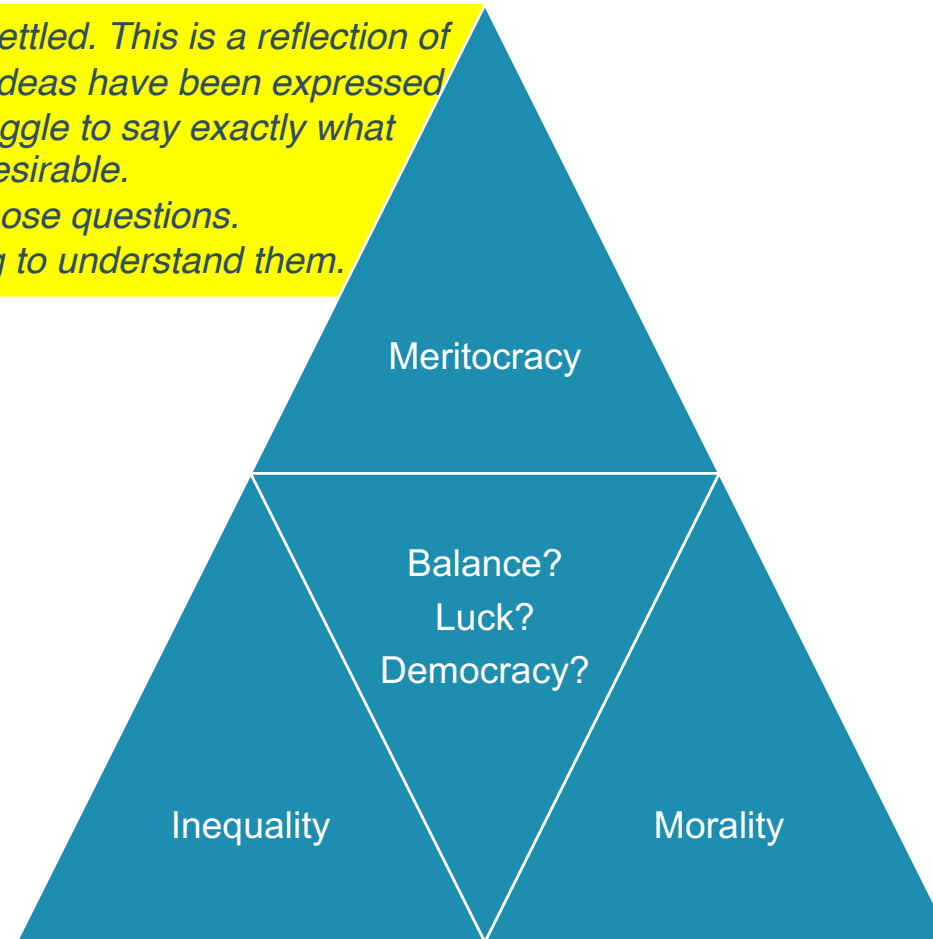
- *Hume puts in the Treatise: The external performance has no merit. We must look within to find the moral quality. This we cannot do directly; and therefore, fix our attention on actions, as on external signs. But these actions are still considered as signs; and the ultimate object of our praise and approbation is the motive, that produc'd them. (1739–40: 3.2.1)*
- *Rawls pairs equal opportunity not with a meritocratic distributive rule, but with his Difference Principle. A just society, according to Rawls, will respond to merit only insofar as that benefits the worst-off members of society. Conceivably, by allowing meritorious citizens to earn more than non-meritorious citizens, we can grow the social pie and thereby enable greater redistribution to the worst-off. If that is the case, and only if that is the case, will Rawls' theory pay any heed to merit. But merit's role in Rawlsian distribution will always be mild, instrumental, and contingent.*
- *The most commonly-adduced argument for the “wisdom of the [democratic] crowd” is Condorcet's Jury Theorem (Condorcet 1785). In its simplest form, the theorem considers a group of voters choosing between two alternatives (e.g., a Democrat and a Republican). Each voter has a probability of choosing the “correct” (e.g., more just) candidate. That probability is shared and >50%. Assuming votes are statistically independent and the group uses “one person, one vote”, Condorcet's theorem tells us that (i) the larger the group gets, the more likely it is to choose correctly and (ii) the probability that the group chooses correctly goes to 100% as the number of voters goes to infinity.*

# Meritocratie, een beladen concept?

*The meritocracy debate is, to put it mildly, unsettled. This is a reflection of its philosophical richness. While meritocratic ideas have been expressed and implemented for millennia, we still struggle to say exactly what meritocracy is and if it is desirable.*

*We do not have full answers to those questions. Perhaps we are now, at least, beginning to understand them.*

THE  
GENETIC  
LOTTERY  
WHY DNA  
MATTERS  
FOR SOCIAL  
EQUALITY  
KATHRYN  
PAIGE  
HARDEN



*Napoleon: la carrière est ouverte aux talents*

*Cf. Jerome Karabel, The Chosen, 2005 (The hidden history of admission and exclusion at Harvard, Yale and Princeton)*

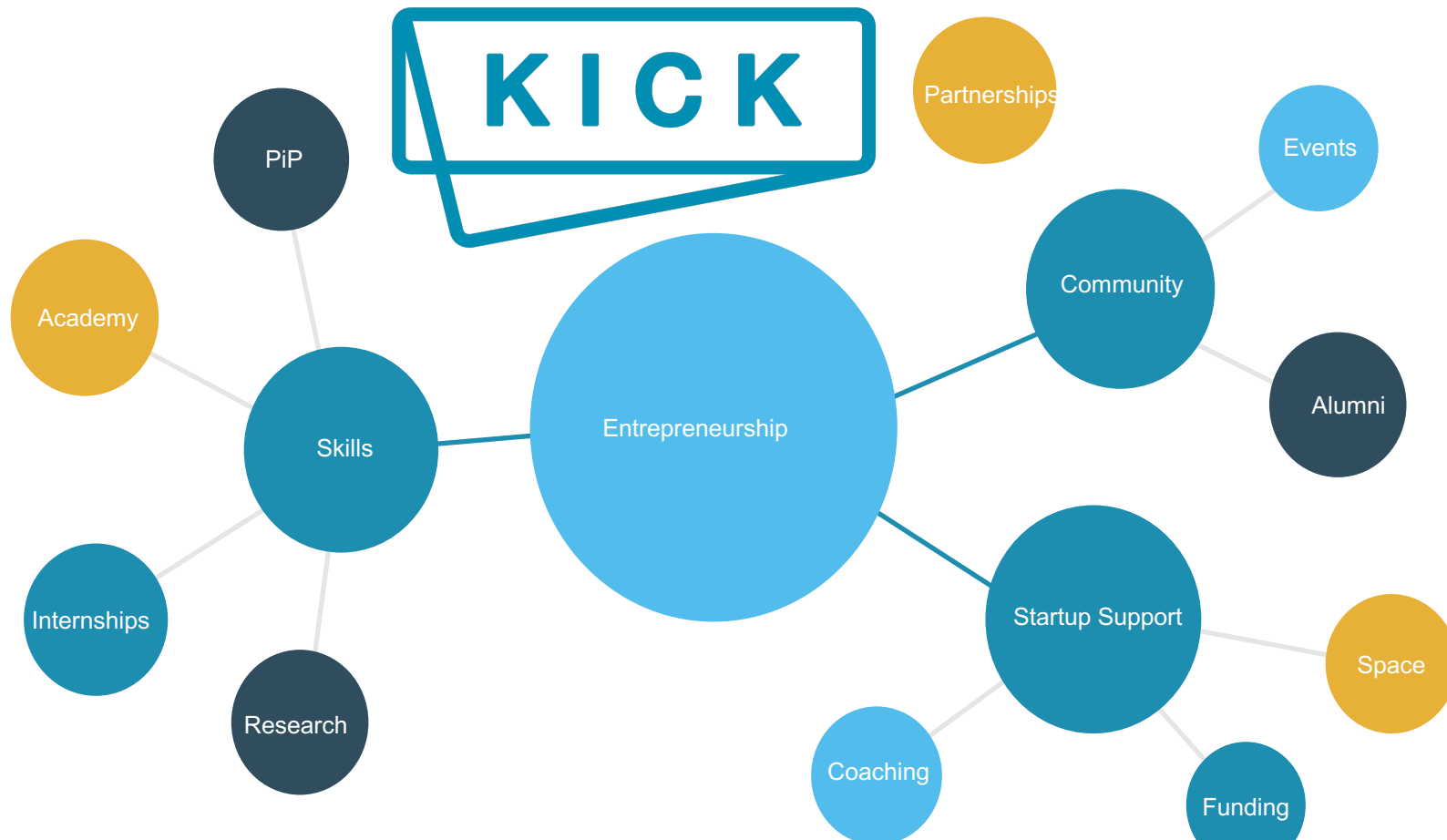
# “The endless frontier”

Het verleggen van grenzen als uitgangspunt



| COLLEGE-WIDE IT/ENTERPRISE BACKBONE                                | ENROLLMENT MANAGEMENT  | STUDENT SUCCESS & INSTRUCTION                                  |   | ADVANCEMENT                           |
|--|--|--|---|---------------------------------------|
| <b>Enterprise Content Management (ECM) Solutions</b><br>           | <b>Lead Aggregator Solutions</b><br>                                   | <b>Student Success &amp; Retention Solutions</b><br>           | <b>Adaptive Learning Platforms</b><br>                        | <b>Crowdsourcing Platforms</b><br>    |
| <b>Enterprise Mobile Solutions</b><br>                             | <b>Integrated Recruiting &amp; Enrollment Management Solutions</b><br> | <b>Learning Analytics Platforms</b><br>                        | <b>Lecture Capture &amp; Video Platforms</b><br>              | <b>Donor Management Solutions</b><br> |
| <b>Business Intelligence &amp; Analytics Platforms</b><br>         | <b>Constituent Relationship Management (CRM) Platforms</b><br>         | <b>e-Portfolio Solutions</b><br>                               | <b>Online Course Providers</b><br>                            | <b>Advancement CRM</b><br>            |
| <b>System Integration Solutions and Implementation Support</b><br> | <b>Enrollment Analytics Platforms</b><br>                              | <b>Textbooks Digital Course Materials &amp; Courseware</b><br> | <b>Online Assessment</b><br>                                  | <b>Advancement Analytics</b><br>      |
| <b>Enterprise Resource Planning (ERP) Platforms</b><br>            | <b>Social Recruitment &amp; Engagement Platforms</b><br>               | <b>Online Program Managers</b><br>                             | <b>Learning Management Systems (LMS)</b><br>                  | <b>One Stop Solutions</b><br>         |
| <b>Student Information Systems</b><br>                             | <b>Financial Aid Advising &amp; Modeling Solutions</b><br>             | <b>Web &amp; Mobile Accessibility Solutions</b><br>            | <b>Competency Based Platforms &amp; Advisory Services</b><br> | <b>Social Media Platforms</b><br>     |
| <b>Grant &amp; Scholarship Management Solutions</b><br>            | <b>College Application Hosting</b><br>                                 | <b>Learning Relationship Management (LRM)</b><br>              | <b>Career Readiness Solutions</b><br>                         |                                       |
| <b>Productivity &amp; Collaboration Applications</b><br>           | <b>Tuition Management Solutions</b><br>                                |  |   |                                       |
| <b>Forms Management Solutions</b><br>                              | <b>Financial Aid Processing Solutions</b><br>                          |  |   |                                       |
|  | <b>Commerce Solutions</b><br>  |  |   |                                       |

# Studenten verleggen grenzen van kennis en ondernemen





# “The endless frontier”

## Het verleggen van grenzen als uitgangspunt



Robert M. Solow

IN this day of rationally designed econometric studies and super-input-output tables, it takes something more than the usual "willing suspension of disbelief" to talk seriously of the aggregate production function. But the aggregate production function is only a little less legitimate a concept than, say, the aggregate consumption function, and for some kinds of long-run macro-models it is almost as indispensable as the latter is for the short-run. As long as we insist on practicing macro-economics we shall need aggregate relationships.

Even so, there would hardly be any justification for returning to this old-fashioned topic if I had no novelty to suggest. The new wrinkle I want to describe is an elementary way of segregating variations in output per head due to technical change from those due to changes in the availability of capital per head. Naturally, every additional bit of information has its price. In this case the price consists of one new required time series, the share of labor or property in total income, and one new assumption, that factors are paid their marginal products. Since the former is probably more respectable than the other data I shall use, and since the latter is an assumption often made, the price may not be unreasonably high.

Before going on, let me be explicit that I would not try to justify what follows by calling on fancy theorems on aggregation and index numbers.<sup>1</sup> Either this kind of aggregate economics appeals or it doesn't. Personally I belong to both schools. If it does, I think one can

\* I owe a debt of gratitude to Dr. Louis Lefebvre for statistical and other assistance, and to Professors Fellner, Leontief, and Schultz for stimulating suggestions.

<sup>1</sup> Mrs. Robinson in particular has explored many of the profound difficulties that stand in the way of giving any precise meaning to the quantity of capital ("The Production Function and the Theory of Capital," *Review of Economic Studies*, Vol. 21, No. 2), and I have thrown up still further obstacles (*ibid.*, Vol. 23, No. 2). Were the data available, it would be better to apply the analysis to some precisely defined production function with many precisely defined inputs. One can at least hope that the aggregate analysis gives some notion of the way a detailed analysis would lead.

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draw some crude but useful conclusions from the results.

Theoretical Basis

I will first explain what I have in mind mathematically and then give a diagrammatic exposition. In this case the mathematics seems simpler. If  $Q$  represents output and  $K$  and  $L$  represent capital and labor inputs in "physical" units, then the aggregate production function can be written as:

$$Q = F(K, L, t) \quad (1)$$

The variable  $t$  for time appears in  $F$  to allow for technical change. It will be seen that I am using the phrase "technical change" as a shorthand expression for *any kind of shift* in the production function. Thus slowdowns, speed-ups, improvements in the education of the labor force, and all sorts of things will appear as "technical change."

It is convenient to begin with the special case of *neutral* technical change. Shifts in the production function are defined as neutral if they leave marginal rates of substitution untouched but simply increase or decrease the output attainable from given inputs. In that case the production function takes the special form

$$Q = A(t) f(K, L) \quad (1a)$$

and the multiplicative factor  $A(t)$  measures the cumulated effect of shifts over time. Differentiate (1a) totally with respect to time and divide by  $Q$  and one obtains

$$\frac{\dot{Q}}{Q} = \frac{\dot{A}}{A} + A \frac{\partial f}{\partial K} \frac{\dot{K}}{Q} + A \frac{\partial f}{\partial L} \frac{\dot{L}}{Q}$$

where dots indicate time derivatives. Now define  $w_K = \frac{\partial Q}{\partial K} \frac{K}{Q}$  and  $w_L = \frac{\partial Q}{\partial L} \frac{L}{Q}$  the relative shares of capital and labor, and substitute in the above equation (note that  $\frac{\partial Q}{\partial K} = A \frac{\partial f}{\partial K}$ , etc.) and there results:

$$\frac{\dot{Q}}{Q} = \frac{\dot{A}}{A} + w_K \frac{\dot{K}}{K} + w_L \frac{\dot{L}}{L} \quad (2)$$

RESEARCH IMPACT

## The dual frontier: Patented inventions and prior scientific advance

Mohammad Ahmadpoor<sup>1,2</sup> and Benjamin F. Jones<sup>1,2,3\*</sup>

The extent to which scientific advances support marketplace inventions is largely unknown. We study 4.8 million U.S. patents and 32 million research articles to determine the minimum citation distance between patented inventions and prior scientific advances. We find that most cited research articles (80%) link forward to a future patent. Similarly, most patents (61%) link backward to a prior research article. Linked papers and patents typically stand 2 to 4 degrees distant from the other domain. Yet, advances directly along the patent-paper boundary are notably more impactful within their own domains. The distance metric further provides a typology of the fields, institutions, and individuals involved in science-to-technology linkages. Overall, the findings are consistent with theories that emphasize substantial and fruitful connections between patenting and prior scientific inquiry.

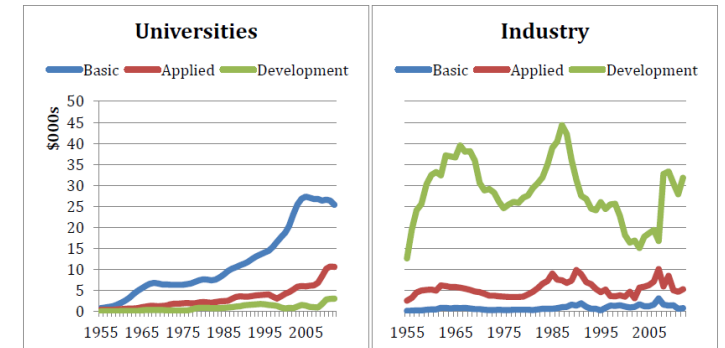


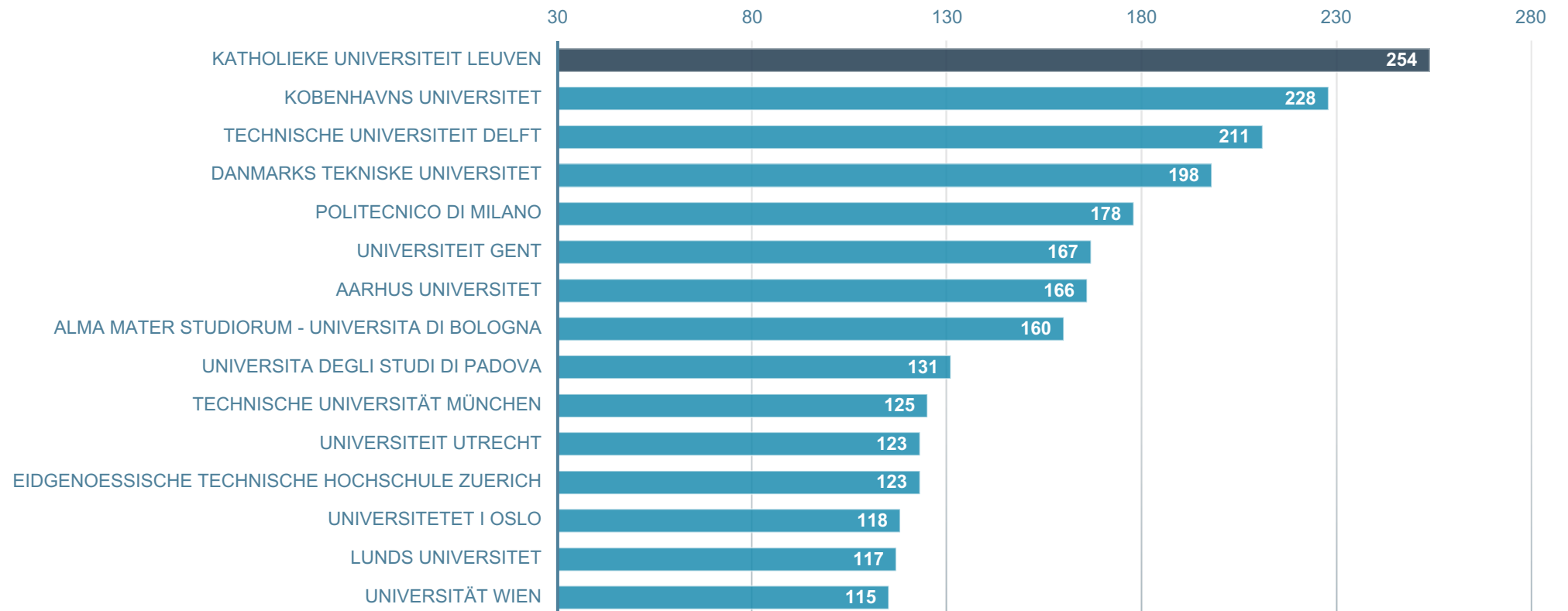
Figure 2. Character of federal research spending. All amounts in \$M, expressed in 2015 dollars. (Data from the American Association for the Advancement of Science.)

# Wetenschap, technologie, markt

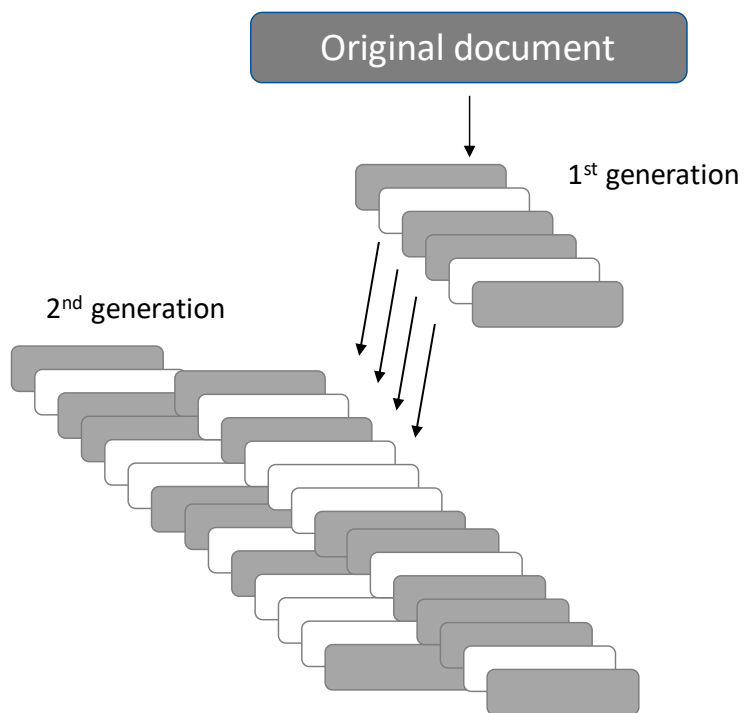
# L'excellence, l'excellence, toujours l'excellence et l'égalité sera sauvée

## HES ranking Horizon Europe (number of participations)

source: Horizon Europe Dashboard EC 09/2023



# Grenzen tussen disciplines verleggen

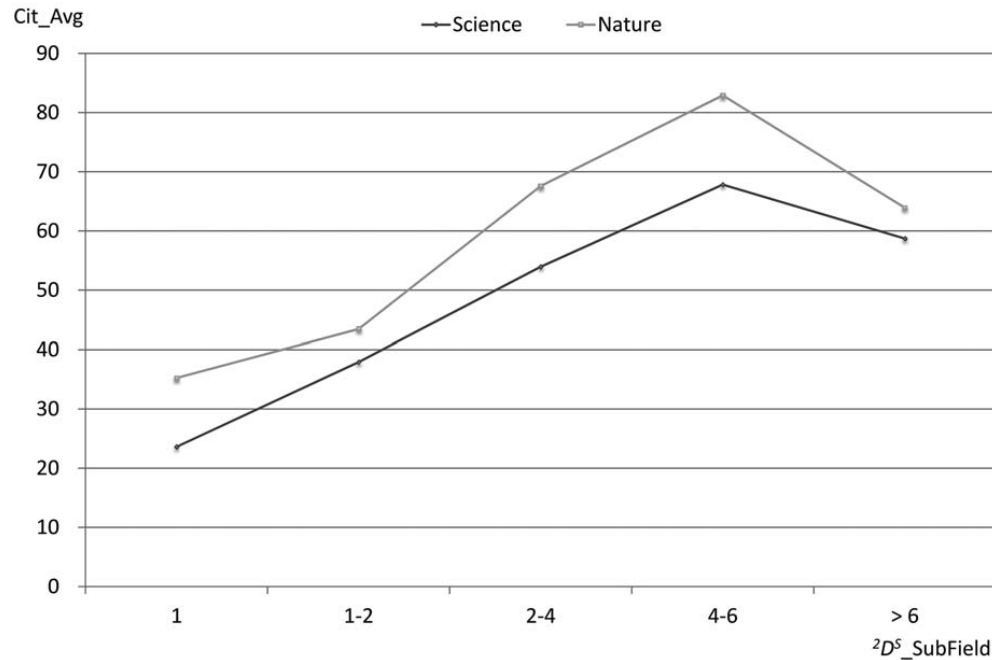


**Table 2. The distribution of discipline similarity between 1st and 2nd generation references by major fields, with a colour gradient from red (strong similarity) over white to blue (weak)**

| Field | [.95,1] | [.9, .95] | [.85, .9) | [.8, .85] | [.75, .8) | [.7, .75) | [.65, .7) | [.6, .65) | -.55, 1.6) | [.5, .55) | [.0, .5) |
|-------|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------|-----------|----------|
| A     | 0.456   | 0.268     | 0.120     | 0.062     | 0.034     | 0.020     | 0.012     | 0.008     | 0.006      | 0.004     | 0.009    |
| B     | 0.484   | 0.282     | 0.119     | 0.054     | 0.026     | 0.014     | 0.008     | 0.004     | 0.003      | 0.002     | 0.003    |
| C     | 0.510   | 0.249     | 0.109     | 0.054     | 0.029     | 0.017     | 0.010     | 0.007     | 0.004      | 0.003     | 0.007    |
| E     | 0.578   | 0.199     | 0.090     | 0.047     | 0.027     | 0.019     | 0.011     | 0.008     | 0.006      | 0.004     | 0.011    |
| G     | 0.729   | 0.139     | 0.055     | 0.028     | 0.015     | 0.010     | 0.007     | 0.005     | 0.004      | 0.003     | 0.007    |
| H     | 0.640   | 0.164     | 0.076     | 0.041     | 0.023     | 0.020     | 0.010     | 0.007     | 0.006      | 0.004     | 0.010    |
| I     | 0.467   | 0.280     | 0.124     | 0.058     | 0.029     | 0.016     | 0.009     | 0.006     | 0.004      | 0.002     | 0.005    |
| K     | 0.368   | 0.160     | 0.108     | 0.077     | 0.050     | 0.061     | 0.032     | 0.026     | 0.029      | 0.023     | 0.065    |
| L     | 0.692   | 0.144     | 0.064     | 0.033     | 0.019     | 0.015     | 0.009     | 0.006     | 0.005      | 0.004     | 0.010    |
| M     | 0.501   | 0.241     | 0.113     | 0.058     | 0.032     | 0.019     | 0.012     | 0.008     | 0.005      | 0.004     | 0.008    |
| N     | 0.675   | 0.195     | 0.067     | 0.029     | 0.014     | 0.008     | 0.005     | 0.003     | 0.002      | 0.001     | 0.003    |
| P     | 0.535   | 0.228     | 0.101     | 0.052     | 0.029     | 0.018     | 0.011     | 0.008     | 0.005      | 0.004     | 0.009    |
| R     | 0.339   | 0.295     | 0.162     | 0.086     | 0.047     | 0.027     | 0.016     | 0.010     | 0.006      | 0.004     | 0.008    |
| Y     | 0.444   | 0.230     | 0.117     | 0.067     | 0.040     | 0.030     | 0.019     | 0.014     | 0.011      | 0.008     | 0.022    |
| Z     | 0.484   | 0.262     | 0.113     | 0.056     | 0.031     | 0.019     | 0.011     | 0.007     | 0.005      | 0.004     | 0.008    |

*Data sourced from Clarivate Analytics Web of Science Core Collection*

# Terwijl disciplinaire diepte belangrijk blijft



As shown in Tables 4–5, the diversity of NPs is significantly lower than that of the top 10% and the median 10% groups, but higher than that of the bottom 10%, suggesting that the knowledge concentration of Nobel Prize winning work is higher than in non-NP work. Moreover, we divided the whole period into three parts based on the Nobel Prize publication year to provide insight into the difference over time in the diversity of NPs and matching groups. The results in Figs.3–6 indicate that although the diversity of references increased over time, the difference between NPs and conventional research remains, except for NPs in 1980–2016 vs the bottom 10% group in corresponding fields based on *True R-S*. This observation can be considered as an indication that our results are sufficiently stable.

## Is low interdisciplinarity of references an unexpected characteristic of Nobel Prize winning research?

Xian Li<sup>1</sup> · Ronald Rousseau<sup>2,3</sup> · Liming Liang<sup>4</sup> · Fangjie Xi<sup>1</sup> · Yushuang Lü<sup>1</sup> · Yifan Yuan<sup>1</sup> · Xiaojun Hu<sup>1</sup>

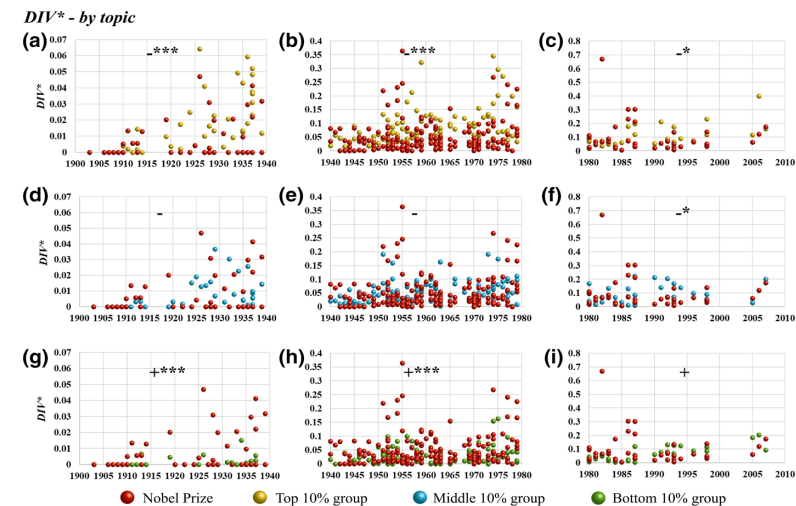
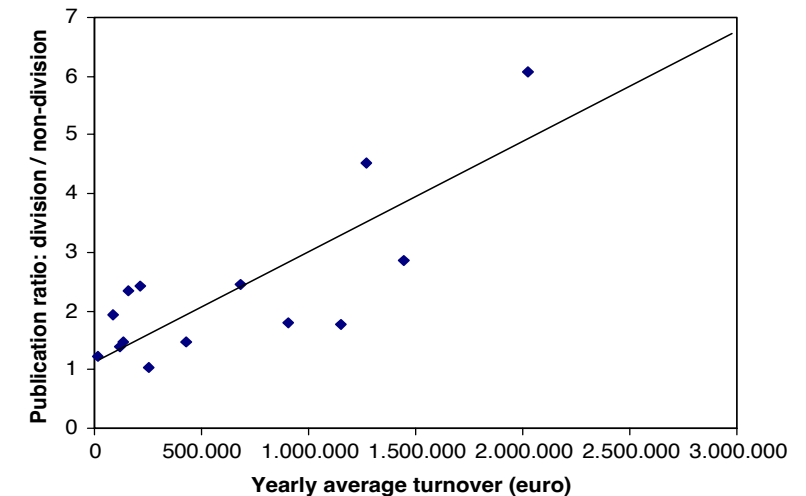
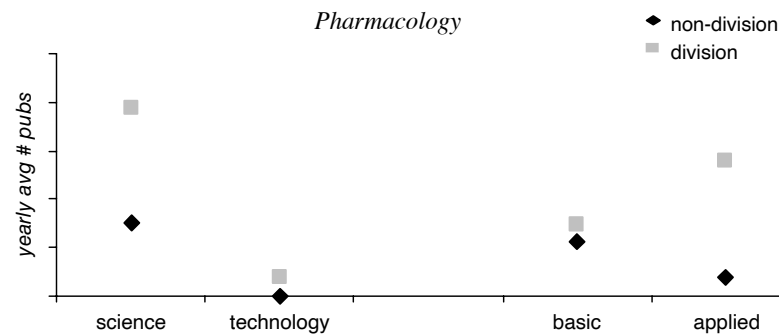
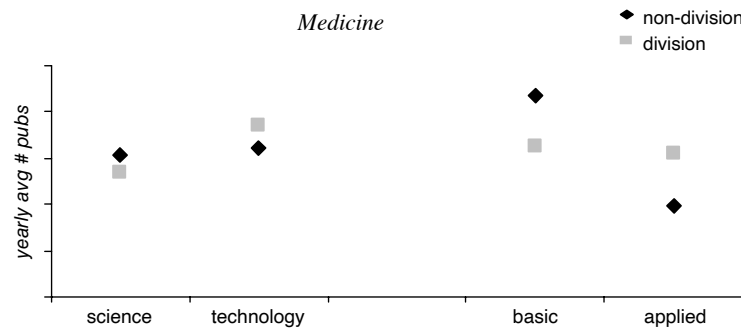
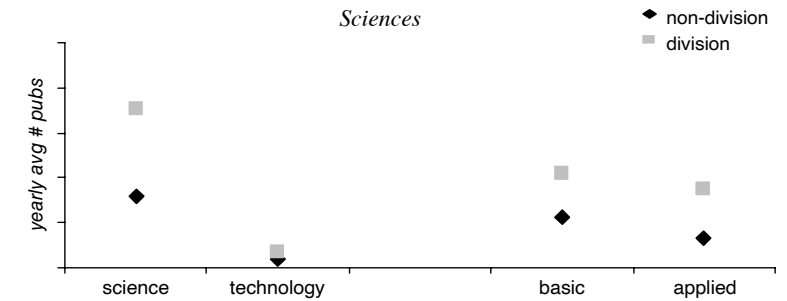
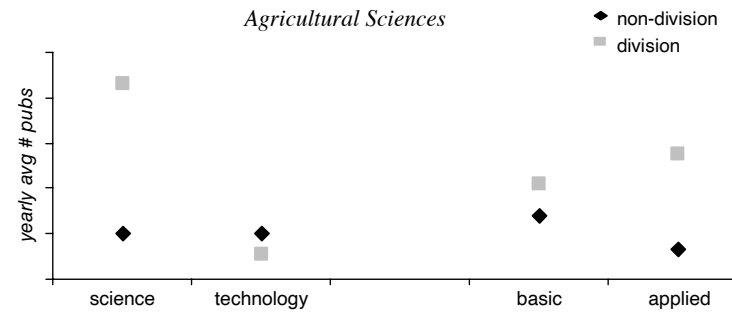
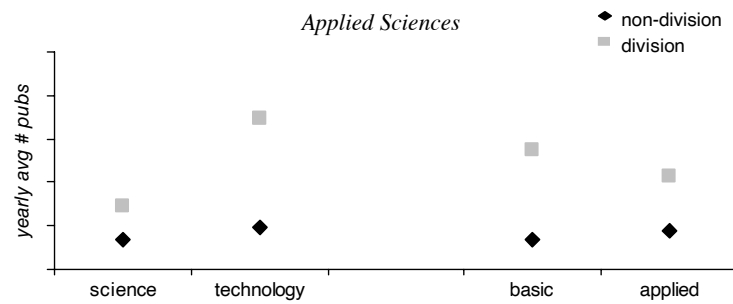


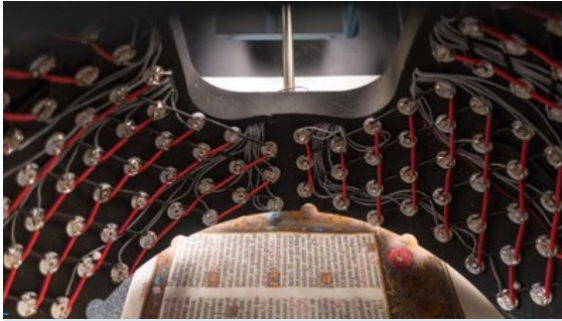
Fig. 5 The  $DIV^*$  of NPs and matching groups per year with common topics

# Grenzen verleggen en kruisbestuiven (Research Policy, 2004) ... du choc des idées ...



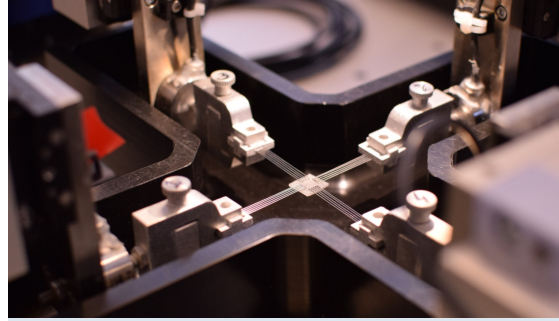
# Grenzen verleggen via kernfaciliteiten

Kernfaciliteiten bundelen wetenschappelijke top-onderzoeksinfrastructuur. Ze geven impulsen om excellent academisch onderzoek te voeren, binnen een breed en interdisciplinair netwerk.



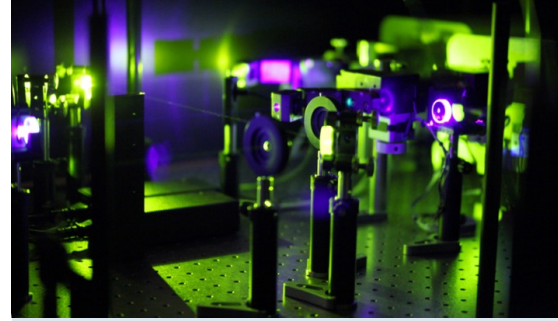
## VIEW

- KU Leuven Kernfaciliteit voor Erfgoedonderzoek en Digitaliseringstechnologieën
- Onderzoekt de karakteristieken van documentair erfgoed
- Faciliteert onderzoek op het gebied van diagnose, conservering en nieuwe technologieën voor digitalisering



## FIBER

- Ontwikkelt en verricht hoogkwalitatieve mechanische tests van biologische weefsels
- Analyseert ook biomedische producten en hun mechanische interactie met biologische weefsels en draagt zo bij aan de ontwikkeling en evaluatie van toekomstige therapieën



## KFGS

- Helpt fundamentele processen blootleggen in een brede waaier van nieuwe elektro-optische nanomaterialen en past deze inzichten toe
- Een one-stop platform dat toptalenten herbergt, voor onderzoekers uit verschillende departementen en disciplines



## SERRES

- ondersteunt plantenwetenschappers in hun proefopzet en huisvest hun planten in ideale condities
- eigen geautomatiseerde controle van de temperatuur, luchtvochtigheid, belichting en water- en nutriëntengift

# Grenzen van kennis verleggen: doctorandi

## DRIE DOCTORAATSSCHOLEN



**DOCTORAL SCHOOL OF  
HUMANITIES & SOCIAL SCIENCES**



**DOCTORAL SCHOOL OF BIOMEDICAL  
SCIENCES**



**ARNBERG DOCTORAL SCHOOL  
OF SCIENCE, ENGINEERING &  
TECHNOLOGY**

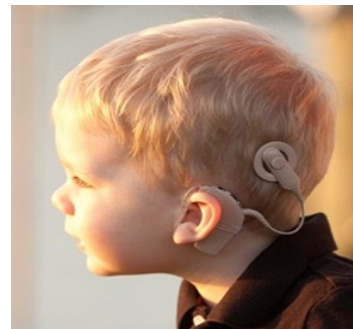


# “The endless frontier”

Het verleggen van grenzen als uitgangspunt



# Grenzen verleggen in dienstverlening



PUSH-PULL  
PULL-PUSH





## REGA INSTITUUT



## TRANSPLANTATIECENTRUM



## CENTRUM VOOR PROTONTHERAPIE



### "TECHNOLOGY CORRIDOR" LEUVEN MET DRIE WETENSCHAPSPARKEN

- Wetenschapspark Arenberg
- Wetenschapspark Haasrode
- Wetenschapspark Termunck



### TWEE WETENSCHAPSPARKEN BIJ CAMPUSSEN

- Wetenschapspark Waterschei
- Feed Food Health Campus



### VIJF BUSINESSCENTRES

- Leuven Business Centre
- Leuven Bio-Incubator
- UbiCentre
- Campus Remy
- Kortrijk Innovation and Incubation Centre
- Tienen Biogenerator

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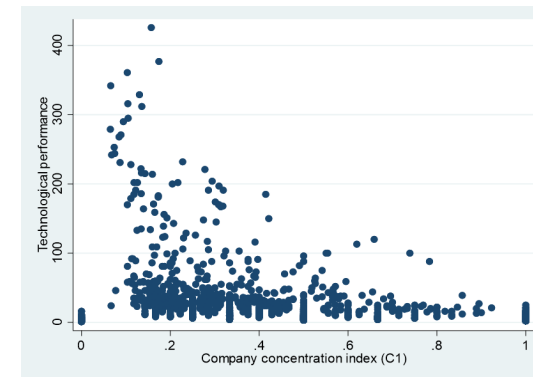
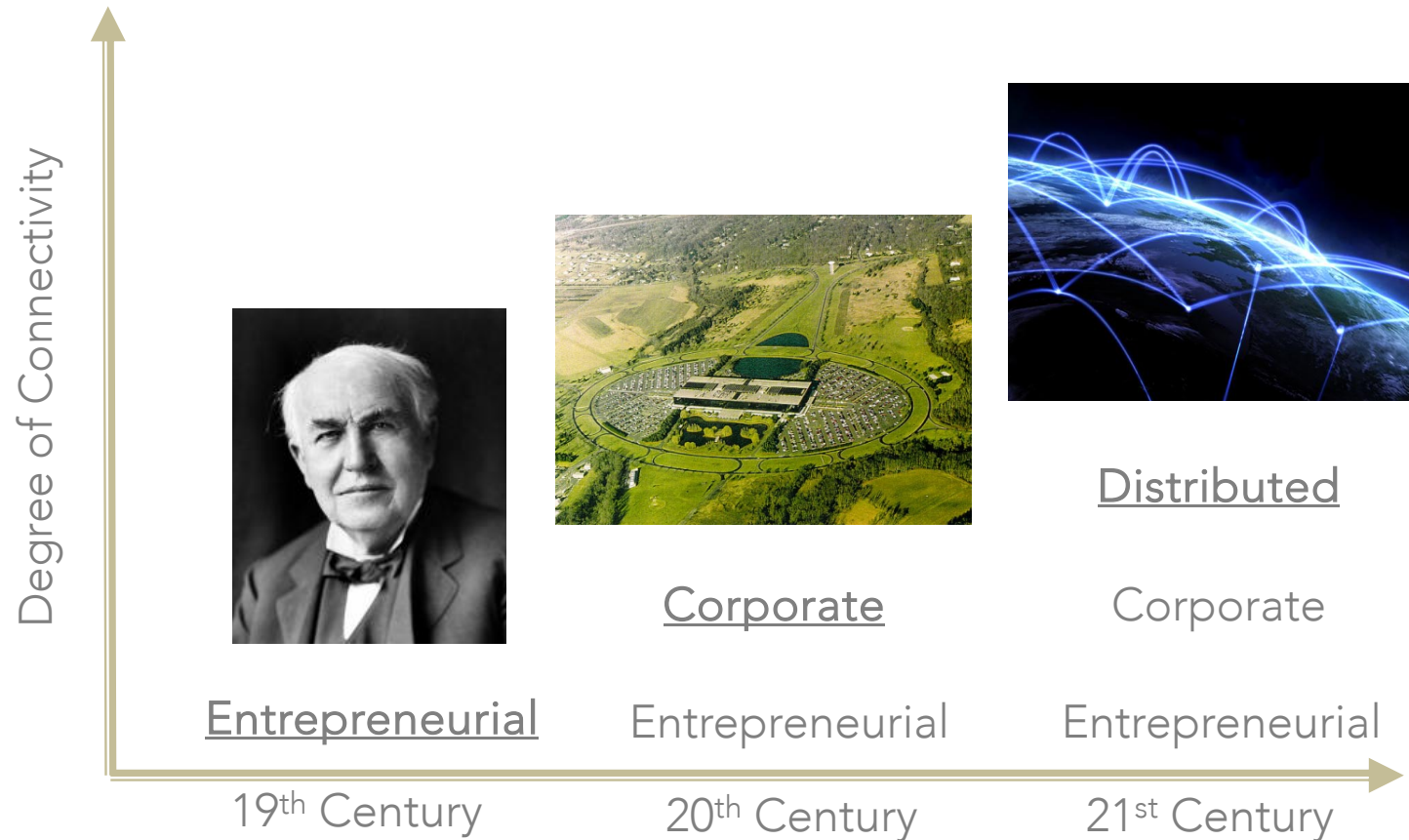


# Grenzen verleggen in internationalisering





# Van individuele organisatie naar ecosystemen



Source: Dahlander & Gann, Research Policy 2010

# Geef zuurstof aan grensverleggend werk, de “verdienste” volgt automatisch





# Verdienste vereist balans en meten (Hendrik Lorentz, door meten tot weten)



## THE USEFULNESS OF USELESS KNOWLEDGE

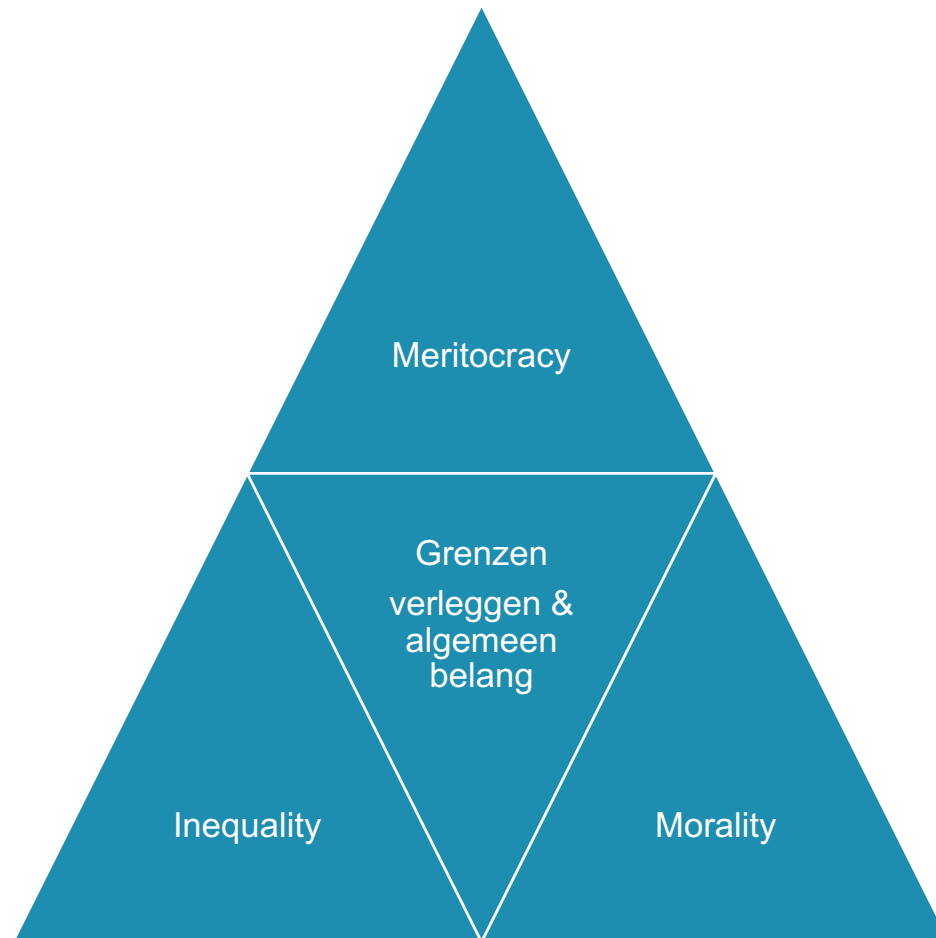
BY ABRAHAM FLEXNER

It is not a curious fact that in a world steeped in irrational hatreds which threaten civilization itself, men and women—old and young—detach themselves wholly or partly from the angry current of daily life to devote themselves to the cultivation of beauty, to the extension of knowledge, to the cure of disease, to the amelioration of suffering, just as though fanatics were not simultaneously engaged in spreading pain, ugliness, and suffering? The world has always been a sorry and confused sort of place—yet poets and artists and scientists have ignored the factors that would, if attended to, paralyze them. From a practical point of view, intellectual and spiritual life is, on the surface, a useless form of activity, in which men indulge because they procure for themselves greater satisfactions than are otherwise obtainable. In this paper I shall concern myself with the question of the extent to which the pursuit of these useless satisfactions proves unexpectedly the source from which undreamed-of utility is derived.

We hear it said with tiresome iteration that ours is a materialistic age, the main concern of which should be the wider distribution of material goods and worldly opportunities. The justified outcry of those who through no fault of their own are deprived of opportunity and a fair share of worldly goods therefore diverts an increasing number of students from the studies which their fathers pursued to the equally important and no less urgent study of social, economic, and govern-

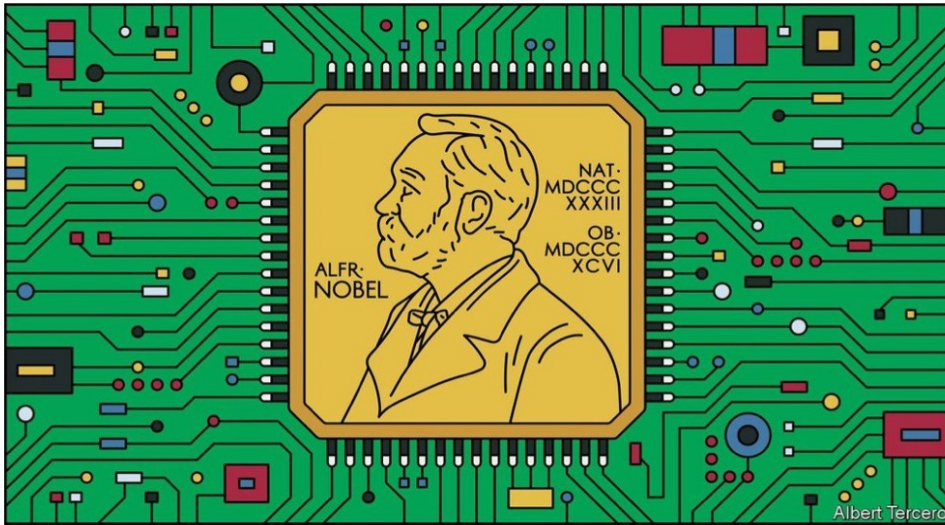
mental problems. I have no quarrel with this tendency. The world in which we live is the only world about which our senses can testify. Unless it is made a better world, a fairer world, millions will continue to go to their graves silent, saddened, and embittered. I have myself spent many years pleading that our schools should become more acutely aware of the world in which their pupils and students are destined to pass their lives. Now I sometimes wonder whether that current has not become too strong and whether there would be sufficient opportunity for a full life if the world were emptied of some of the useless things that give it spiritual significance; in other words, whether our conception of what is useful may not have become too narrow to be adequate to the roaming and capricious possibilities of the human spirit.

We may look at this question from two points of view: the scientific and the humanistic or spiritual. Let us take the scientific first. I recall a conversation which I had some years ago with Mr. George Eastman on the subject of use. Mr. Eastman, a wise and gentle far-seeing man, gifted with taste in music and art, had been saying to me that he meant to devote his vast fortune to the promotion of education in useful subjects. I ventured to ask him whom he regarded as the most useful worker in science in the world. He replied instantaneously: "Marconi." I surprised him by saying, "Whatever pleasure we



## What if an AI won the Nobel prize for medicine?

Controversy ensues when the greatest prize in medical research is awarded to a non-human. An imagined scenario from 2036



## The Significance of the Frontier in American History (1893)

By Frederick J. Turner, 1893

*Editor's Note: Please note, this is a short version of the essay subsequently published in Turner's essay collection, The Frontier in American History (1920). This text is closer to the original version delivered at the 1893 meeting of the American Historical Association in Chicago, published in Annual Report of the American Historical Association, 1893, pp. 197-227.*

In a recent bulletin of the Superintendent of the Census for 1890 appear these significant words: "Up to and including 1880 the country had a frontier of settlement, but at present the unsettled area has been so broken into by isolated bodies of settlement that there can hardly be said to be a frontier line. In the discussion of its extent, its westward movement, etc., it can not, therefore, any longer have a place in the census reports." This brief official statement marks the closing of a great historic movement. Up to our own day American history has been in a large degree the history of the colonization of the Great West. The existence of an area of free land, its continuous recession, and the advance of American settlement westward, explain American development.

## Conclusie

### Blijven(d) grenzen verleggen

