

Scoring is not a new phenomena: we can learn from a lot of experiences how to deal with digitized scoring

Gert G. Wagner

Alexander von Humboldt Institute for Internet and Society (HIIG, Berlin)

and

Max Planck Institute for Human Development, Berlin

Outline

- Definitions
- Evaluation criteria
- Brief history of scores
- What's new about scores?
- How do deal with (digitized) scores?

Definitions

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 - for behavior prognosis or behavior control
 - by an algorithmic procedure
 - nowadays often on the basis of a broad data base

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Brief history of scores

- An important note:
 - No algorithm and no score is a truly black box which functioning nobody can understand
 - Every algorithm and every score can be tested in a systematic manner
 - Computer scientists speak from „Understandable Artificial Intelligence“
 - It might be the case that developers and users of certain algorithms and scores do not want that their instruments are tested. But they can be forced by law !

Evaluation criteria

- My questions and criteria for judgment are:
 - under what circumstances are scores accepted by the population?
 - under what circumstances are they rejected or viewed sceptically?
 - under what circumstances there is more or less need for regulation by law?

Brief history of scores

Classical scores

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- Gender (0 vs. 1 score)
 - Defining many many rights and duties
- Age
 - Defining adulthood
 - Defining elderly status / legal retirement age
- Wealth
 - Defining military rank and tax payment
- 0 vs. 1-Listing (black, white and red lists)
 - Listed people are punished/not punished; e. g. EU Visa Information System)
(presentations by M Ohlberg and L C Backer)

Brief history of scores

- School grades, exam grades, GPA (e.g. admission to universities)
- Identification of police officers
- Disability grade (e. g. Donald Trump's avoidance of military draft)
- Premium structure of life insurance policies
- Premium structure in motor vehicle insurance (e. g. "pay as you drive", telematics options)
- Premium structure in health insurance (e. g. bonus programmes)
- Classification of clients of dating services

Brief history of scores

- Handicaps and weight classes in competitive sports (e.g. boil weight off before weigh in)
- Credit scoring
- Points in Flensburg
- Value of professional footballers (transfermarkt.de)
- Social cybernetic search (now called "profiling")
- Early detection in medicine
- Immigration by points (e.g. the cases of USA and Canada)
- "h-Index" for scientists

Brief history of scores

- Personalized vouchers in supermarkets
- Personal reviews (stars, hearts, likes, ...) on social media platforms and e.g. Airbnb
- Scoring of customer groups (e.g. frequent flyer status, call center customers)
- Customer evaluations of teams and individuals in the service sector (e.g. restaurants)
- Microtargeting in online trading
- Formulators of electronic dating services

Brief history of scores

- "Robo-Advising" for financial investment
- People Analytics
- Predictive Policing
- Teaching Analytics
- Digital Patient File (e. g. „elektronische Patientenakte“)
- Social Credit Scoring (in China)
- Polygenic Risk Scoring

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- People Analytics
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- Teaching Analytics
- Digital Patient File (e. g. „elektronische Patientenakte“)
- Social Credit Scoring (in China)
- Polygenic Risk Scoring*

* *Polygenic risk scores* reflect a mathematical aggregate of *risk* conferred by many DNA variants to estimate the likelihood of a specific outcome, such as disease onset in an individual. The *scores* are the output of statistical models developed using data from large genome-wide association studies (GWAS)

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- Transparency: do we now a score exists and how it works?
 - Is there a interface for individual testing and systematic testing?
- Legal framework: Is there a right of appeal?

- Score quality: does the score measure what it should measure?
- Quality of data basis: are there few errors in the data basis?
- Protection against discrimination and equal treatment: how fair is a score?

How do deal with (digitized) scores?

A note: it is true that algorithms put pressure on employees who decide about wishes (for example to get a credit) of customers and clients, as it can be difficult to decide against advice from an algorithm or a score. But this pressure is nothing new. Every written rule - and even more unwritten rules - of an employer put pressure on employees

Conclusion

The Western view of scoring is in stark contrast to the view in China:

- In China, algorithms and scores should replace written law and lawsuits in court
- In Western societies, algorithms and scores are only expected if they can be challenged and brought to court
- So: if algorithms and scores are transparent (and free of discrimination), testable and can be challenged in court they *can* be accepted in Western societies

Thanks a lot for listening