

Institutional Rating in Everyday Life

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Abstract

Rating on the Internet seems to be a rather new kind of activity. However, traditionally a quite large number of institutional rating mechanisms are established. We have studied a number of such rating methods to gain some insights about the role rating can play in the actions of individuals and institutions.

Introduction

We all rate objects and events in our environment and our life. We evaluate persons, their actions towards us and towards others. We rate objects according to their usefulness for specific purposes and actions for their appropriateness. We all exchange personal assessments of those items: be it by gossip, by serious consultation or by formal channels.

If we try to introduce rating schemes in the electronic communication environment it could help to look at rating in traditional social environments. Our emphasis in this respect will be on formalised, institutionalised forms of rating in our social communities. Having set this goal, it became evident very soon that many different forms of ratings exist: Grading in schools, rating of personnel in companies, assessment and evaluation of projects and programmes, rating of consumer products by consumer associations, professional evaluation of working tools, assessment of performance in sports, awarding prizes, medals and honours in literature and arts.

What are the common features of those schemes? What can we learn from them in setting up new rating mechanisms? Will rating mechanisms in the future be modelled after traditional forms? Or will there emerge new forms? What are the ingredients to be preserved? In what way do they fail? What additional benefits has electronic communication to offer?

Studying rating procedures, we have to take into account several different features:

What are the functions of rating mechanisms? What purposes does a rating fulfil? What are its uses for the recipient?

How is rating done? What are the methods of rating? Experts, panel, formal mathematical methods, experimental set-ups and other methods contribute to the establishment of ratings.

Who will use the ratings? How are the ratings distributed - are they for internal use of a company, a school, an institution or are they distributed widely and - at least in principle - open to the public?

Functions of Rating

Let us first start with a list of traditional forms of rating. We will classify ratings in the categories

- Assessment of performance of individuals
- Reduction of uncertainty in making decisions
- Assessment of output and achievement

One may also classify differently:

- Assessment of past actions and performance, or existing products and artifacts to serve as a model
- Assessment of alternatives (specific plans) for action
- Assessment of possible future developments, visions or states of the world (independent of the path to this futures),

It is obvious that these functions are not clearly separated. Many rating mechanisms have several purposes and different users of a rating will see different functions as important. However, to achieve some order in this area it could be useful to use this preliminary classification. We leave out the evaluation by the marketplace: prices are a form of rating. On the one hand they are indicators of the usefulness but they are also influenced by scarcity and the effort to produce them (expressed in capital and labour costs). However, it is self-evident that many of the rating schemes listed below are somehow - directly or indirectly - related to economic performance. We have to be aware that the different forms of rating have quite different social and political influence: ratings by big credit

institutions may determine the future fate of companies and their employees. They may even topple governments in case a nation is losing creditworthiness (Martin, Schumann 1996, p.99).

We will study those features in turn and will make some remarks on their implications for Computer Mediated Communications (CMC).

Assessment of performance of individuals

Grading in school and higher education

We will start with this as most of us have experienced this kind of rating as the first formal rating scheme to become acquainted with. It is perceived as a grading of the knowledge and the ability of the pupil or student. Empirical work (Kalthoff 1996, Stiggins and Conkin 1992, Brookhart 1993) shows the complex setting of grading practices. Teachers adapt their grading to the average performance of the class. They orient themselves on the best pupils and restructure their assessment according to averages (arithmetic means, number of pupils failing a given task). Teachers perceive the results of examinations as a test of their own performance. Have they been successful in explaining concepts and teaching skills? This becomes more explicit in objective forms of examinations, which is most often the case in final exams. Those are supervised by external experts (in most cases teachers themselves) and in some countries the tasks are determined externally. Comparison of grades by the instructor with those by independent (outside) experts provides clues for the ability and reliability of the instructor.

We have to learn from this that the responsibility of those who have to rate is dependent on their role in the production - evaluation/rating - consequences cycle.

Personnel evaluation

Similar reasoning is true for personnel evaluation. Assessment of personnel to be hired and on the job can be seen often as much as an evaluation of the evaluator as of the person to be evaluated. The literature on personnel management provides a number of different models which are implemented in varying types of industries. Performance rating on the job is another name of the same task. As an example may serve the publication of the American Management Association (Grote 1996)

Psychological testing

Well known and also used in personnel evaluation are the different versions of intelligence tests. Introduced originally to measure the intelligence of psychically handicapped it had widespread use in the seventies and eighties. Although the enthusiasm has somewhat diminished it is still widely used.

Following this psychologists and to some extent sociologists have devised a large number of experiments to measure psychological parameters of persons, and to rank them on scales expressing various properties.

Evaluation of crimes

The evaluation of crimes is a typical multistage process: First one body, the legislator formulates guidelines for the lengths of containment in jail or the fines for conceivable crimes or offences - or an existing tradition of cases, textbooks and practices provides this framework. Then in a given case another body of persons - the judge, a jury - has to determine the specific penalty which takes into account the special circumstances of the offence. Even the mitigating and aggravating circumstances have legal codifications, precedences and a body of literature (e.g. Pallin 1982).

The legal system codifies to some extent the moral convictions of the society and provide means to enforce them. The purposes of the punishment are various: Prevention of future crimes and compensation or punishment for misbehaviour are the major factors contributing to the justification of these most elaborate rating systems of our societies. The quoted text by Pallin describes these factors in more detail. A very specific detail in this form of rating is the elaborate justification which goes with every verdict. If voters had to express their decisions always - or at least more often - in terms of well established principles consensus may be more easily achievable.

Even if one does not (yet) institutionalise the legal system in the electronic environment, it gives an example of the rating of undesired events and results. The rating of content on the WWW and in the Internet as pornographic or politically censored may provide a first meeting point of the net technologies and the legal system. The

Thomson Bankwatch has separate rating schemes for countries (governments) and companies (firms). Similar but often simpler rating schemes apply to credit rating for companies in the national environment. Credit rating are directly related to interest rates charged. The rating of countries by Moody's may increase interest between Aaa (Triple A) and B by 3.8 percent (Martin, Schumann 1994, p.98).

The process of credit rating by banks is quite elaborate. All kinds of data about the individual or the company are assembled and complex calculations based on statistical reasoning and the latest developments in mathematical decision making under uncertainty are used. Banks themselves use computer networks to refer complicated and risky decisions to central authorisation units. In this case the central unit and the manager in the outpost knowing the local circumstances can have the same information on the screen and often decide together on the rating.

Evaluation of project proposals

Together with the evaluation of projects this is the area of the classical evaluation. Guba and Lincoln (1993) describe four different steps in the development of evaluations (their background is in educational projects whereupon the theoretical background of evaluation draws heavily):

Measurement (psychological - educational tests): Evaluator as technician

Description: characteristics of achievement and non achievement. Strength and weaknesses in the attainment of specified objectives.

Judgement: drawing conclusions about evaluands success, effectiveness or utility

Constructive negotiation (see below in the methods section)

For the time we may state that for the phase of project formulation and proposal evaluation communication is of high importance. Not all discussions can be substituted by CMC but it helps in the follow up of personal discussions and presentations. Reformulating in the proposal situation is well suited for negotiations with - and involvement of - special interest groups.

Clear cut ratings are possible but have to take into account the sensitive issues.

Evaluation of medical interventions

The assessment of medical treatments is a sensitive issue. The traditional double blind experiments try to avoid some common pitfalls of introducing bias by the experimenter. While a certain freedom in interpretation remains the procedures are mainly based on measurement and experiment, which is the first method of evaluation in well defined circumstances.

Distribution of resources according to urgency of different options

Performance rating of companies in the management boards and in the stock exchange

As we declared that we will not tackle the area of prices and economic competition there remain only the non-economic areas to assess companies: like rating companies according to their social impact or the ecological consequences of their actions. Rating of this kind is for instance performed by the US organisation Eco-Rating International which assesses companies and projects under an ecological perspective for potential ecologically aware investors. A special emphasis lies on Eco-Agro Rating.

Agenda setting in the political arena

Agenda setting is a political process full of pressure groups, social partners, subcutaneous influences of different kind. It is the area of what we call a negotiation environment for programme assessment and evaluation. New electronic media can contribute in the public discussion aspect of this agenda setting.

An example how ratings can be used in this area is provided by VoteSmart, an institution which tries to deliver impartial information for USA voters. One of its approaches is to show ratings of the members of the US Congress by different special interest groups. The idea (independent of the Web or the Internet) is to count the number of cases the member voted with the interests of a given interest groups. This kind of performance evaluation is an established practice by those groups.

VoteSmart collects evaluations of this kind by many different interest groups and describes the results thus:

'These evaluations are in percentage form. They represent the percentage of time that the incumbent voted with that organisation's preferred positions on a number of votes that they identified as key in their issue area. Remember, by definition, these ratings by special interest groups are biased. They do not represent a non-partisan stance. In addition, some groups select votes that tend to favour members of one political party over another, rather than selecting votes based solely on issue concerns. However, they can be invaluable in showing where an incumbent has stood on a series of votes over a year's time, especially when ratings by groups on all sides of an issue are compared. Descriptions of the organisations offering performance evaluations are available'.

The effort shows how even biased ratings may be used to get a comparatively clear overall picture of an area filled with subjective and interest loaded judgements. The message to us could be: Always watch who is rating. Ratings themselves give clues about the rating unit (be it a person or an institution).

Assessment of output and achievement

Measurement of performance

In some subjects in sport and in competitive games easily definable procedures help to measure performance and rate achievement. Not too many of those achievements are related to activities in the digital environment. It is, however, no conceptual problem to show results on a new medium and to consider new forms of competition acting directly on the networks.

Evaluation of projects

This is the evaluation of a project during and after its implementation. Comparative evaluation of completed projects in the political arena are not popular but can give valuable insights in the planning of further activities.

Literary criticism - selection by publishers - peer review

Judgement of texts by publishers readers and by the literary critiques determines the success of texts. That is true for both the success in the market place and also the recognition in the more esoteric circles of elitist literature. A somewhat more formalised and theoretically more impartial solution is the peer review process which tries to guarantee a fair selection process. It is still the best process we have although it is sometimes distorted by influential individuals or by unscrupulous groups of those. A recent article in the Scientific American it is shown how difficult it is for scientists from third world countries to publish in journals quoted in the Science Citation Index, and how difficult it is for Third world journals to be accepted in the Index (This Index works obviously contrary to the former Vatican Index by exclusion - not by inclusion).

Honours, medals and prizes (literature, film, arts, sciences)

Ratings are constituted fairly frequently in the different forms of art and in sciences by awarding prizes. These range from fairly local events with limited appeal to outsiders to events with world-wide reputation like the Oscar, the award of the American Film Academy, and the Nobel prize.

These two events show also the main sources which establish those events and keep them alive: institutions which want to promote a cause, e.g. an industry (in our case the film industry), a public interest (if the sponsor is a national or local government) or individuals which have a special interest in some area - and Nobel is by far not alone in doing it. The Nobel prize became famous because of the money which came with it. This does not mean that it would not remain famous if the money would suddenly not be available any more. Some of them are voted for by large groups of people and represent therefore a certain consensus within the group.

Not always is the prize necessarily only directed to its professed purpose. Often more or less veiled purposes - of political, manipulative or even tax evasive character - may be present also.

Prestigious prizes definitely enhance reputation and are directly or indirectly also sources of economic benefits.

Achieving specific goals: social, technical, environmental

Professional societies recognise the achievement of some of those goals by award or prizes. Other achievements are honoured by the government in giving tax benefits, grants or contracts.

Honours and prizes are one form. Some organisations or publications, however, list institutions and persons also independent of those. They praise those doing active work for a cause, or behaving in the right way, while other lists single out the worst offenders of the expected behaviour.

Peace and human understanding

We take this as an example of widely recognised but often difficult to define contributions. Receiving a peace prize does not prevent recipients to go to war later on. It may also be the token for abstaining from further horrors. But do not misunderstand me: This is an achievement!

Increasing awareness of refugees, the hungry of the world, the dangers of war and the mechanisms leading to those is worthwhile pursuing even if it sometimes goes awry.

On the opposite end there are also medals and appraisals for acts of war, the war heroes as outstanding examples. Rating as an abstract concept is neutral. As individuals or as institutions we have to take our stand.

"Over all" achievements. Place in history

The long term rating of achievement is the recognition in the text books of the area concerned, and the inclusion in general books of history. While even here some mechanisms to remember and honour your own kin are present (those winning the wars write history) a certain detachment allows a more sober view. The sheer need to concentrate on the essential contributes to a fairer rating. History writing may surface contributions which were not recognised as forerunners of important developments during the life of the originator(s). But history rarely rectifies misjudgement during the lifetime of able contributors and in a very precise sense it comes to late for those anyhow.

Methods of Rating

Methods of rating are influenced by a number of factors:

Rational measurement and assessment of performance. Using experiments and related observations, measurements, mathematical and statistical models to simulate or replicate behaviour. Discussing arguments in the context of the knowledge to which the rated object or person contributes.

Tactical and strategical considerations are included into the rating to achieve a political, personal, or group oriented objective. Sometimes the real purpose is somewhat hidden and the rating assumes a manipulative character.

Measurement and experiment

We have already spoken about measurement in sports. Testing products is another area where many features or ingredients of a rating may be determined by experimental set-ups. These set-ups may also include users, giving their subjective opinion on some quality. How far, and under what circumstances this is done, determines the answer whether the whole procedure is still a measurement. The problem is then more how to aggregate the different results in an overall rating for a specific purpose. As long as the individual (partial) test results are made accessible, alternative ratings for special purposes can be derived. An appropriate digital environment is well suited to support this re-evaluation.

Specialists. Opinion leaders

Many, if not most formal ratings are done by experts and specialists. They try to establish formal procedures to reach an objective result. These may be experimental set-ups in which consumer products or other items may be measured.

Thus, the International Organisation of Consumer Unions, IOCU, publishes guidelines for testing. The European Testing Group (ETG) organises co-operative testing of products by the different national testing organisations. Additionally to the staff of the institutions experts are mustered for the special area of the product under consideration.

The properties of the product which are considered are functional quality, durability, safety and security, ease of handling and price. Especially, properties offered in advertisements, legal requirements, standard, environmental compatibility, service, warranty, availability of spare parts packing installation and manuals have to be taken into account.

Experiments show that independent evaluation of products by consumers highly correlate with the test results. A certain problem is the overall assessment. This global rating is assuming an average consumer and may not fit to the individual need of the specific consumer. This discrepancy is accepted to achieve high visibility and to reach consumers with widely varying education.

If the aim is to predict, based on queries to a sample of the whole population, the choices which would have been made if every single member of a large population had been asked, then statistics requires stringent ways of selecting the sample, using random sampling, stratified sampling, etc.

Jury

Prizes, medals and honours (and legal sentences) are often given by juries. In most of the cases the jury is a group of experts in a given field.

Consider the Nobel price awarding procedure:

Each year the respective committees send individual invitations to thousands of scientists, members of academies and university professors in numerous countries, asking them to nominate candidates for the Nobel Prizes for the coming year. Those who are competent to submit nominations are chosen in such a way that as many countries and universities as possible will be represented. These prize nominations must reach the respective committees before February 1 of the year for which the nomination is being made.

'The nominations received by each committee are then investigated with the help of specially appointed experts. When the committees have made their selection among the nominated candidates and have presented their recommendations to the prize-awarding institutions, a vote is taken for the final choice of laureates. Prize decisions are announced immediately after the vote in October each year. Competence to nominate candidates for the Nobel Prizes varies somewhat among the prize-awarding institutions...'

Juries sometimes work in very informal ways but some have also highly structured procedures. It may be conjectured that the selection of the jury is more important than the procedure, but in some cases well defined, published procedures are important for the acceptance of the rating by the users.

Peer groups

The paradigm of assessment in science is the peer review. What is to be published in influential journals is determined by anonymized scientific peers. The articles are sent by the editors of the journals to peer scientists competent to judge the content. These do agree or not to a publication. They often provide further guidance and helpful comments on the paper and make publication dependent on the meeting of certain conditions.

Due to the widespread use of Internet publishing in some sciences (50% of all physics papers are pre-published on the e-print-Archive in Los Alamos, New Mexico) the discussion on electronic alternatives to the peer reviews has advanced most widely. A whole OECD conference in June 1996 was dedicated to "The Global Research Village" (The Economist June 22 1996).

One solution would be to append comments to every paper for subsequent readers to view. Another to put stars on the paper, like in the Michelin Guide (one of the consumer product rating schemes). The chief worry is "that high quality work will be drowned in a flood of dubious data and poor prose." The peer review also lets a lot of this through.

Normally the author of the paper gives up his copyright to the scientific paper. Publishing on the Internet means keeping the copyright but giving it away for free. Should the government interfere? Similar to what the Danish minister of research and information technology proposes: We will provide high speed communication links if the scientists publish their results on the Internet!

Clearly a final model to replace peer review has not been found. Web4Groups is a place to experiment.

Social discussion, bargaining processes and negotiations of those concerned

Evaluation of proposals or of ongoing or finished projects are often performed by a 'political' process of negotiation of the parties concerned. The proponents of 4th Generation Evaluation (Guba and Lincoln 1989) argue that evaluation in such circumstances should prefer such a way of 'constructing' a joint view of the envisaged changes and of the effects on groups with differing interests. Such a process will often not be satisfied with ranking a limited number of proposals but will be actively involved in developing proposals.

Opinion polls

Opinion polls are often conducted to find out the preferences of the public or a specific target group. Normally a limited set of options are proposed and preferences are looked for.

The main problem on the Internet is so far representativity. Only target groups with strong commitment to the net will be appropriate for this method.

Automatic Procedures

In electronic environments many procedures may be automated: Users or visitors of a Web site or another entry point to a computer may be observed. Inferences about their preferences can be made automatically by analysing their path through the computer, the Web-site or the Web at large. These ratings can then be combined in an adequate way and be presented to the user himself (may be for correction or to get a more explicit rating from him) to the managers of the site or (at least in aggregate form) to the other visitors of the site ("Our most successful pages are". "This URL lured 20.000 repeating visitors" or more complicated inferences). There is some concern about the transparent customer about whom the shopping centre knows more than he himself. Should one encourage this? Should one give back some of the information to the user/customer who provided it in the first place? Where are the limits?

Stratified or general rating

Rating may even be done by individuals. However, in many cases the rating shall represent a totality of a certain sort. In this case one has the choice that everybody can contribute to the rating process of all items or issues. There is also the other possibility that the group elects representatives to do the actual assessment for them (this can also be a single individual). Alternatively a random sample from the totality can do this rating.

Stratified samples guided opinion formation

A variant of the random sample is the approach to assemble a random sample of the totality, selected by main characteristics of the population (stratified sample), and to perform with them a guided opinion formation. Assuming that the average person selected will not be too competent in the area, experts will present the main positions and issues in the area for which a rating may be due. After the presentation and guidance the group is left alone to come to a common conclusion in a negotiation phase.

Contributions of voluntary donators

Simple rating tools on the WWW give the opportunity for every visitor to leave his preferences on a limited number of topics or items. These are then assembled in overall ratings or statistical distributions of results. This resembles street activists who collect opinions on debated issues by asking passers by to answer questions or fill in forms. It has some justification if the visited arena is rather specialised and its visitors are reasonably well behaved. It may also be suited to make visible a public outcry or the complete negligence of an item. If the aim is to predict, based on queries to a sample of the whole population, the choices which would have been made if every single member of a large population had been asked, then statistics requires stringent ways of selecting the sample, using random sampling, stratified sampling, etc. However, in many everyday processes, there is no such goal to predict the opinion of a larger population. Quite the opposite, it is often valuable to have rates set by individuals who have time to prepare a good evaluation before setting their ratings. In this case it may be desirable to identify the persons giving the ratings and make them recognisable.

The fact that statistical predictions requires stringent sampling methods does not imply that all kinds of ratings done by only a selected number of people to be regarded as non- acceptable. In any case one will gather with these methods ideas about what may be controversial or where there is little dissent.

Commercial success in the market place

For completeness we mention this most widespread and successful rating scheme. It will not be dealt here explicitly but it enters in other ways implicitly.

Distribution and Dissemination of Ratings

Confidentiality - distribution policies

The distribution or dissemination of the results of a rating process varies widely. Examination grades, personnel ratings, credit ratings are not usually distributed widely. Even if they are announced the circulation is fairly limited. Privacy and Data Protection laws even forbid the publication of many of those informations.

Research results, sport events, tests by consumer unions and prices and honours are for publication and the amount of publicity depends more on the influence of the rating unit on media than on demands for confidentiality.

Many ratings inside government institutions are confidential, at least as long as the final decision is not announced.

Every distribution mechanism will have to take into account the different needs of diverse rating institutions. Some demand for confidentiality, especially in the phase of collecting contributions to the rating process will be necessary for many organisations. On the Internet the security features which are just stabilising will be necessary to provide this data protection.

Who receives ratings

Different phases of the rating process requires changing needs for the protection of information. Some prizes are awarded very openly: discussions on the merits of the candidates may even be transmitted over TV. Other large organisations (think of the Oscar) keep intermediate results fairly concealed. And many ratings have to be accessible only to a few select.

In a distance education environment one may ask that grades are only visible to the examiner, the school administration and the student. In many of those circumstances the rating of the rater may depend on his successful ratings.

Who uses ratings

The different functions determine the target groups of the ratings.

Rating students, personnel, and crimes the target groups are obvious. Only large crimes are published widely although the legal proceedings are normally public. In Europe at least it is not usual to put criminals on display as a part of the punishment. But both the police system and potential employers are interested in some information.

All ratings directed to decision makers are evidently used to help making those decisions.

The most diffuse motivation exist for the assessment of output and achievement. Part of the *raison d'être* lies in giving and enhancing reputation for those whose achievements seem worthwhile to one group or another. That implies that the ideas the results or only the biography of the rated person, organisation or the project become better known. Here not decisions are in the forefront but orientation in a longer time-frame. Those providing these ratings hope to advance a cause, to share enjoyment about achievements and to contribute to the structuring of our life. Decisions are influenced, but those giving the award have no specific idea about the individual decisions made.

Projections

The comparison of ratings by several or many subjects may be used to find common interests between persons. Having identified a common interest (e.g. in music, in science, in literature) it is possible to make proposals for interesting items one of them has seen and rated.

How long are ratings significant

Different forms of rating have different life time. Normally ratings are superseded by more recent ratings of the same kind. But even if their validity remains intact their impact may change over time. Consumer product ratings would often be valid several years. Analyses of the impact of especially good ratings for products are felt by the sales departments of the respective companies between 3 and 7 months (Spitalsky 198x).

Support of Rating through CMC

There are some differences between face to face meetings with (synchronous types of) voting. Computer support allows the handling of much larger numbers of participants. More complex sequences of questions may be designed to give answers to several aspects of the problem under discussion. Several and more elaborate aggregation rules may be used and discussed. Computer support allows also continuous voting, where every participant may see the result of the votes up to now and may change his vote accordingly. This allows decision procedures akin to Delphi studies in which experts adapt their estimates of future events and of ratings of options under the influence of arguments of other panelists. Often but not always a better consensus may be achieved.

Role distribution (Who is rating?)

Access control present in most CMC tool may be used to restrict access to the rating process. Outcome of any rating process is crucially dependent on who is doing or contributing to the rating.

Interest groups have usually a formulated purpose and rate according to their interest. Normally they have also an internal structure which can define appropriate roles and procedures.

If we want to implement a rating mechanism which every participant in CMC can start, we will have to define a minimum set of those roles and a minimum procedure.

If we are more ambitious we can devise a whole class of procedures, each with its own role set. In any case we can assume that anybody setting up a rating scheme will do the necessary preparation. Either using the predefined (minimum?) roles and procedures or customising the server for his needs. Computer help could especially be provided in the aggregation process of individual contributions.

Agenda Setting (What is rated?)

Professional rating institutions have well defined tasks and established ways to select items to rate. The ease of communication could make it simpler to handle larger volumes of data. The countervailing force is the need or hope for a certain quality of the rating. Otherwise the acceptance and the use of a rating scheme will be missing. The alternative could be the manipulation of results by the interested parties.

One has to be aware that already the decision to rate something is an important one. Even a film getting the predicate of the worst film ever produced gets some additional visibility and some fame after all. Even more important is agenda setting in the media. Creating awareness is a separate activity which may be supported by nearly any rating procedure.

Monitoring (What are the others doing?)

For many purposes it is enough to follow the activities of others. If I have identified a person or an institution who does excellent work in my area, it is advisable to follow the activities of the person or institution to the extent which is manageable for me. Does this need active involvement of the expert? Or should we look only to changes of his Web (or Web4Group) site?

Filtering and Prediction (What are my interests?)

A basic problem on the Internet is the mass of information. To find items of high quality fitting exactly my interest and my pressing needs for searched for items becomes more difficult in the present fast growing Internet. We described already the possibility to use joint interests to make predictions about items which could interest me.

Simpler methods just filter out unwanted information or direct me to the areas which I visited before.

The theoretical problem is to classify the information available not by the needs of an average user but to the needs I have. If I consider my interests and knowledge represented by a classification, I am looking for a classification of the material on the Internet which comes near to the classification I am acquainted with.

Naturally I do not need the information which I already have, but some which is near enough to be useful but still complementary. To do this automatically is a topic for research in statistics and artificial intelligence but practical results are still far away.

On the other hand it remains likely that the most important way to find out about new relevant developments is the personal contact with other persons with similar - but not too similar - ideas, interests and background.

Additional labels or ratings by special interest groups could help to narrow down the field to search for specific information. The traditional keepers of information have been the librarians. They have a wealth of experience in classifying information for users. They were struggling with the traditional tools, catalogues and card indices.

But they have developed many ideas going beyond. One has to transfer several of the virtues of librarians into the cybersphere. The chapter on existing rating tools will describe first applications.

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This paper is based on the relevant content of our book

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