Gruppe

2004

Hochschule neu denken

Memorandum

Re-Thinking Academia

Reorientation on the horizon of sustainability

I.   Prologue: taking offense

The German Academia has lost itself; it does not speak for itself anymore. It puts up with being shepherded through the arena by "limited liability companies" as if it had lost its own right to exist. Although it speaks about it daily, politics bade farewell to academia. Politics forgot that higher education policy is an area of political action of its own.

Academia has to free itself from its position somewhere between economic, regional or adjustment policy. Otherwise it will be subdued by heteronomy. With the heteronomy by "*university development-, evaluation or accreditation agencies*", this sort of higher education policy works as slow poison. It paralyses academia and continues to garble its duties and goals. But if those are changed beyond recognition, academia appears as nothing but a boarder of public authorities.

Academia is not guiltless about this situation. It subdued itself to the dictatorship of "*economisation*" although it is not a business establishment. It renounces its own profile and tries to match with Harvard and MIT, although the majority of the US universities are by no means of high quality. These are symptoms for the dramatic loss of self-respect. And there is no lack of recent examples: Hastily, academia tries to catch the "elite train", although it knows that this train will never reach its destination. It truncates itself by amputating its supporting legs formed by social sciences and humanities. The German Academia blindly follows political turnarounds

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motivated by the daily changing policies, particularly if there might be any chance to alleviate its financial distress. This loss of self-respect does not match the possibilities and, by no means, the challenges academia has to face.

"Re-thinking Academia" means to develop *long-term goal perspectives* based on these possibilities. That is, how can academia identify the complex problems of a changing world society and how contribute to their solutions. Academia will only be successful if it understands this challenge as a task for a sustainable world culture which combines *long-term thinking* with *responsibility*.

II. Accepting the Challenges

We find ourselves in the stage of a world-wide change of society. This stage calls for a new quality both in dealing with problems between mankind and environment and in forming a global way of cohabitation. This stage is characterised by three different main routes which are closely interwoven, and whose consequences we feel more explicitly every single day.

Global Change

The worldwide cross-linking of economy. It is pushed forward by an increasingly rapid flow of goods, money and information. Low-priced telecommunication and computer technologies on the one hand and increasingly dense transport nets and energy supply systems on the other. Worldwide, these phenomenon transform production, logistics and flow of commodities. Multi-national business establishments and trans-national operating financial actors successfully try to manipulate this economic globalisation process. This process is characterised by grand mergers of business establishments, mass dismissals, turbulences around the financial markets, growing disparities between poor and rich countries, social and economic dispartment tendencies within single nations. This involves dispartment tendencies between regions integrated into the world market and those drifting far behind, between modern and traditional sectors, between qualified and unqualified employees, between required workers and those who are no longer needed, between poor and rich.

The globalisation of ecological endangerments. It becomes most obvious in the man-made Greenhouse Effect and in the loss of biodiversity. Global ecological endangerments are linked with regional problems such as water shortage, forest damages, degeneration into steppe and

urban sprawl. Those regional problems are again linked with local damages to the environment such as air pollution, waste, traffic noise or decreasing soil fertility. The dynamic of this ecological crisis is pushed forward both by processes of growth or restructuring and by the dispartment of the world into poor and rich. This crisis is further accelerated by the global population growth paralleled by increasing regional disparities concerning population density and consumption level. The world population will increase from presently 6.3 billion to more than 9 billion, primarily in the southern hemisphere.

The explosive *increase in available information.* This increase was made possible by the spread and plentiful use of modern information and communication technologies, by the expansion of data networks and of research and development. Whatever is globally available in principle, is not necessarily available on the local level: New and fast increasing inequalities regarding the access to information widen the gap between winners and losers of global communication.

All these trends overlay, bind and intensify each other. Worldwide and in separate regions, they lead to most different economic, social and ecological problems. The ubiquity of such consequences reveals the necessity of a responsible future handling of natural and societal resources. This global understanding of sustainable development has turned into a practical guideline for designing the future. Cornerstones of this evolution were the Rio-Process, further events organized by the United Nations to different topics (the last of which was the World Summit 2002 in Johannesburg), international agreements and the according self-commitments expressed by many nations. Yet this process has not really reached German Academia. It lives, just as its supporting society does, in a relative a-simultaneousness compared to the drastic changes of its surrounding world.

New knowledge is required

A society trying to cope with such complex problems will feel the necessity to create a new foundation of relevant knowledge. This is important as the economic, ecological and social consequences of the globalisation process may not be dealt with simply by use of those technical, cognitive and symbolic means that this process itself has created.

First, a new *economic and social knowledge* is required in order to understand the globally linked economy and its crisis dynamics as well as to minimize its ecological and social consequences.

Second, a new *ecological knowledge* is required to comprehend the relationships between societal changes and ecological endangerments on global, regional and local level and to detect reliable pathways of a sustainable development.

Finally, a new *knowledge about knowledge* is required in order to stay judicious and capable of acting within the general information overload. This meta-knowledge includes the knowledge about its own inherent limits and about the risks of acting, which result inevitably from its uncertainties and fragmentariness.

A society which is able to provide this knowledge and to use it systematically in order to advance sustainably would have to pass through a "knowledge revolution". This includes the target- and problem-oriented use of knowledge, that is to practice an according knowledge management on a societal level. This poses a completely new challenge for science and technology which are still connected with the crisis dynamics portrayed above.

Sustainability – Science reflects itself

„Re-thinking Academia" includes the reflection about necessary re-organisation of academia and science. Science and its principles have long ago penetrated every single sphere and by now have significantly determined our every day life, both in those countries already embracing technology and in the worlds which are currently technologically advancing. Academia is significantly involved in this process of penetration and therefore is jointly responsible for the current problems. Science and technology led to global flows of knowledge, production, commerce and human beings. These flows and their ecological and social consequences principally added a new dimension to human action: A spatial and temporal dimension, spanning the globe and the biosphere, full of consequences, covering generations. This path of human energy, opened up by science and technology and leading from local and temporal ignorance into global and outlasting effectivity, is irreversible. It has created new problems and responsibilities which re-act directly back upon science and which have to be taken up by research and teaching. Academia has to be re-thought.

The engagement with aspects of „*globality and sustainability*" should become general duty and *self-reflexing touchstone* for any science. Thus, a new and difficult task appears. That is, academia needs to include professional competence into problem-oriented, systemic and

integrated approaches, not only in research but also in teaching. Furthermore, academia needs to create the necessary interdisciplinary research and teaching structures. The Humboldt Reform strove for the universally educated man. Likewise, the "re-thought" academia strives for the competent, interdisciplinarily educated man who learned during his studies to understand the complex interrelation between globality and sustainability and to transform this knowledge into responsible action.

Sustainability offers the framework for discussion and action for an integrated perspective of ecological, social and economic aspects of development. Sustainability includes the institutional and judicial conditions necessary for this integrated perspective. Sustainability holds a comprehensive cultural dimension due to the fact that social ways of life and moral concepts are just as affected as science, technology and education.

An *integrative understanding of sustainability* acts on certain ethical assumptions: sustainable development and justice are inseparably linked with each other. Justice includes distribution and participation justice both among the living and justice toward future generations (intra- and inter-generational justice). It is based on the acknowledgement and enforcement of the Human Rights as precondition for a sustainable world culture. Criteria for a sustainability evaluation have to consider the global demand of this approach. It is about the development of mankind as a whole in a unique but limited habitat. This proviso is justified both ethically and socially, and it refers directly to the global change.

Ecologically spoken, sustainable development, unlike approaches dealing solely with environmental protection or nature conservation, is primarily about the human utilisation of eco-systems, linked with the option for an international agreement on utilization regulation.
A gentle handling of nature is claimed, for reasons of justice and future responsibility, a handling that includes, beside mere usage motives, cultural and civilisational as well as political but peaceful aspects. The constitutive elements of the sustainability approach are stamped by ethical requirements, which may be justified by different cultural features. For the enlightment tradition in Europe, which is by now strongly influenced by modern science, it is crucial to subject the ethical premises implied in sustainability research to a rational discourse. This discourse itself has

to be part of inter- and transdisciplinary research. This self-reflection is undertaken in the view of a long-term perspective.

Providing future perspectives.

The problems created by the global change and the search for widely sustainable solutions poses more and more clearly a challenge for science. This challenge calls for the work on new research questions dealing with the complex interactions between mankind and environment. To the same degree, this concerns the new demands on the cohabitation of mankind in the face of increasing intercultural problems, growing migration movements, old and new social gaps and the parlous dealing with the scientific-technical progress.

Again, an old, but by now, crucially important challenge appears. That is to link the arts and social sciences with natural sciences and technologies, instead of dividing them completely, as is presently done. *Integration* is the prerequisite of transforming the prevalent multi-, or, at its best, interdisciplinarity into a transdisciplinary, problem-oriented science of mankind and environment. Such a science must be able to comprehend the endangerments of the living basis **for** mankind and his surroundings not only as problems. Besides, it must be able to provide adequate remedial designs and future perspectives. For that purpose, different types of knowledge (e.g. explanatory, actional, and orientational knowledge) will be combined and harnessed for society and politics.

In the course of the process called „knowledge or information society", progress components such as innovation or creation and maintenance of secure incomes will depend on availability, comprehension, processing and appropriate utilisation of knowledge. Indeed, there usually is a difference between the stored and worldwide circulating *information* and the required and available *knowledge*. Information is not yet knowledge. Information is just "possible knowledge". Information must be integrated in a subjective or cultural context and be assessed according to its quality and relevance. Knowledge is always directed at a certain problem and tied to a certain culture. It represents adequately assessed information. Thus, basic education possibilities need to be established for a significant number of human beings worldwide, who were so far excluded from education. Furthermore, advanced training offers for "life-long learning" need to be made available. Anywhere where those conditions are not at all or only insufficiently given, where

these chances are not seized, there societal development and finally individual progress and financial safety are made more complicated or even impossible. Social gaps may occur concerning access to potential knowledge and competences in handling this knowledge, as already became apparent in the "digital divide". The aforementioned requirements are fundamental for societal progress and innovation. Sure enough, the latter receives a critical dimension as soon as it is associated with present contexts.

Promoting innovation and re-organising education

On the national and the international level, markets will only survive if they learn to control the interaction of innovation, maintenance and development of social resources and the gentle handling of natural resources. The uncontrollable expanding innovation market is lagged far behind this comprehension. The present innovation policy and sponsoring predominantly follows short-termed strategies to maximise profits. The attention is only then turned to social and ecological limits when natural or human resources are about to be exhausted.

Pushed by reduced product and system cycles and by the worldwide 24-h data exchange, knowledge will become the crucial factor for economic success. Top quality research and market-relevant innovations are concentrated within the worldwide operating, technology intensive business establishments, due to the fierce strive for the most fruitful products and solutions. Location decisions of large-scale enterprises are still made with the decisive objection to conquer new markets. However, cheap availability of know-how and the vicinity to (state-subsidised) institutions such as universities and colleges start to tip the scale.

Eagerly encouraged by the governments (no matter of which political *couleur*), universities and colleges are gradually usurped by the "Big Players" on this innovation market, even though the support of small and medium sized companies is continuously praised. Thus, the outlines of academia's societal responsibility are blurred and cut down to mere market expectations. Business establishments bear likewise social responsibility, last but not least for the safeguard of an employment system enabling innovation.

The development outlined above leads to an increasing "*academisation of the job system*" with a parallelly increasing employment rate. This trend will continue. It is caused by expanding

"secondary service activities" such as know-how and innovation management, research and development, modified management duties and publishing. Especially academic graduates will benefit from this expansion.

Although the reform attempts of the 1970´s and 1980´s are still valid, the education expansion in Germany has stopped to a rather large extent. In the course of demographic change, the supply of manpower will shorten even if more women enter the labour market and immigration increases. This process will lead to a shortage of employees with university degree. This a phenomenon is also related to the age structure of the presently employed academic graduates. Another negative effect is the temporarily decreased interest to study of those who are entitled to, and the lower participation in higher education of children coming from working class families, particularly with different ethical or cultural backgrounds. In order to prevent a lack of highly qualified employees, it is necessary to increase the participation in higher education of children from working class and non-German families. Besides, women holding a university degree need to be supported and motivated to realise their options on the labour market. For this purpose it is crucial to counteract female discrimination in the work force and to facilitate the compatibility of job and family, for women as well as for men.

III. Discrepancies – Break Lines – Conflicts

Whoever considers the answers to these challenges comes across specific German traditions. These confront him with discrepancies between idea and reality of science, between formal autonomy and factual regulation density of academic institutions and between broad public and narrow elite education, both of which are based on virtually identical structures. Even though such discrepancies may only gradually be alleviated, the short-term goal must be their noticeable attenuation in order to find a way into the future.

Universality: a question of survival

The development of the German Academia scenery since the 19th century is accompanied by the Humboldt claim of a universal education. Despite this claim, which still affects education, subject specialisation and separation are the dominant features of academia life. Universality is not a question of education anymore but of survival, partly arising from the world-wide technique-industrial process. Defining criteria for a sustainable progress and for a humane society realised

for anybody, which is a process involving all cultures, societies and all relevant subjects, means to take the universal claim seriously. This approach bears consequences for academia organisation, structure and co-operation.

Thus again, the long ago crossed "limits of state efficiency" towards academia attract attention. Never before did politics interfere so profoundly with structure and development of academia as it does in these days. As a result, academia is very busy to implement laws and regulations which have been cobbled together against the background of party-political calculations. Every political majority could hold on and ask how beneficial or obstructive, or how practicable or intricate a certain regulation is. But instead, they eternalise themselves in the State Laws on Education and Higher Education. Academia has to cope with the regulations recorded there until the date of new election – or until the topic "higher education policy" becomes an issue of public discussion. These increasing restrictions robs Academia of the energy needed urgently for the restructuring in the face of global change.

On the one hand, universities and colleges are places of education for all those professions that require an academic education. Due to the growing complexity of society and of the problems between mankind and environment, the number of such academic professions and the demand for highly skilled management employees who are capable of life-long learning, high flexibility and strategic and social competence, will increase. On the other hand, universities and colleges serve as a place to qualify junior academics who need to be educated on the highest level possible to enable innovation and advantages on the free market. Whether and how these two tasks may be balanced without damaging either one is an unsolved question.

First of all, academia represents a *facility for the increase of insight*. This increase is only accomplishable by adding inter- and transdisciplinary subjects and approaches to the subject focusing, last but not least due to the increasing complexity of problems relevant for society. Transdisciplinarity offers a solution for the new universality as a question of survival. This sounds plausible whereas reality looks different.

Areas of conflict

Research lives and works in the permanent conflict of becoming more and more specialised and of being stipulated to integrate this specialisation into the accelerating cross-linking between single subjects. Yet this challenge is opposed by traditional systems of gratification of qualification which favour the adherence to single and specialised subjects (e.g. by favouring publications in relevant subject-related professional journals when it comes to evaluation or ratings.)

In sustainability research, where co-operations between subjects and faculties need to be established, the choice for new paths and structures is complicated by both institutional and mental barriers. Meanwhile, everyday life in modern industrialised societies is completely determined by science and technology based, closely-linked procedures, which influence and condition each other. This new society demands from academia, whether alone or in co-operation, to offer a *wide spectrum of disciplines* on an innovative level, despite their strive for profile establishment.

Admittedly, research becomes more and more expensive. Research in empirical matters requires more and more often expensive, modern equipment and highly qualified, methodically versed staff. The expenses to guarantee high-quality research in arts and social sciences rise likewise, due to increasing (inter-) national competition and to the according efficiency requirements. Here, break-lines in the spectrum of subjects become apparent. Rising expenses may lead to conflicts between wide spectrum and high level research. Accurate balancing is required before whole structures of knowledge and know-how are smashed irreversibly.

Due to the increasing splitting of the academic world into single subjects and heterogeneous faculties, and due to the rise of mathematical-scientific and technical subjects, the ideal of a "unity of science" has already disengaged in the 19th century from its philosophical context. Wherever it is not newly substantiated, it transforms into fiction. Still today, it is pretended that the long-lost inner unity is realised in the role of the overloaded professor. His person is supposed to embody the unity of research and teaching.

Whoever seriously intends to re-think academia needs to either re-establish its unity or to replace this unity approach by differentiation, for research and teaching follow different kinds of logic. Otherwise, academia may only be thought as an administrative unit and criticised as an institution of privileges. But all the new justifications for the unity of science which are currently discussed in a reform discourse are extremely questionable. The most dubious one replaces the philosophical approach by an economic excuse. It is believed that scientific unity is formed by its societal and economic usefulness and by its functionality for other than scientific purposes. Whoever believes that this can replace the classic ideal of academia by an image of academia as business establishment may put the quota of third-party funds as crucial criteria and re-think academia with business vocabulary. But the result is nothing but an enterprise.

Differentiation instead of elite illusion.

In the 1960ies, the demand for professions with academic qualification rose quickly and the flow of students increased rapidly. As a result, politics founded new universities and colleges and released the capacity regulation by which the number of staff was dependent on the number of students. For a long time, universities and colleges inwardly resisted this new task, e.g. to academically educate a majority of the following generations and to establish the according *teaching structures*. An important reason for this was the fact that good teaching - unlike good research - is still rather irrelevant for a career. A rejection of this broad education is expressed by the pejorative terms of "mass education" and "mass university" which became widely accepted. Universities and colleges were misled to invert the capacity regulation into an instrument to increase (or to defend) the number of staff without adjusting the teaching structures to the inflow of students. Overflowing seminars, multiple classes and work experiences, anonymous teaching and frustrated teaching staff were and are the consequence.

Not until the pressure from internationalisation and from research institutions and foundations which are worrying about the education quality increased, did the long overdue *differentiation* concerning education structures for professions and research areas become accepted. The intensity of this process varied to a large degree between different academic institutions. Such differentiation is the only possibility to meet the high demand posed to academia. That is, to adequately educate the academic "mass" as well as the academic "elite".

However, this elite promotion must not be confused with the current discussion about the "elite university". This discussion adds fuel to fatal errors: On the basis of the present stock of "mass universities", the planned strategy of well-aimed financial supports will lead to a temporary support of single faculties and graduate colleges. However, the grey-in-grey dominance of the remaining universities will continue. Elite universities are not created by pumping two or three billion Euro into a academia scenery that has grown through the decades, but is now destitute. The foundation capital of Harvard alone adds up to a multiple of the amount that is provided in the frame of the planned elite promotion of the German Academia. So far, these "elite universities" are the final *Trompe-l´oeil* of a helpless university policy.

In the present debate about elite universities, discussions about the contents of research programs fail. The praise of achievements of so-called top level research is an expression of conventional disciplinary pretensions. However, it is not a matter of top level research of single universities, but rather of interdisciplinary co-operation and transdisciplinary research and teaching – both on national level and in international context. In this context, the peering to the USA is rather an expression of old-fashioned grudge. Meanwhile, top performances are initiated in the EU university scene based on co-operations, which are in the need of continuation and promotion.

IV. Re-thinking Academia

Adjusting research structures – establishing forums

Know-how about sustainable development and global change, which is societally and politically useful, is a combination of many kinds of knowledge. Their generation poses a novel challenge for the academic system. The classic structure and development of arts and sciences towards growing specialisation alone cannot be target-oriented any longer. It needs to be extended around a new culture of integrative research. This integrative research, serving as interdisciplinary research, will cross the disciplinary borders and – as does transdisciplinary research – will draw a bow from fundamental research towards concrete application.

Not only can research help with solving problems, but it also creates new realities and thus new problems, due to increasing knowledge. The present discussion about stem-cell research and genetic engineering is proof of this fact. Therefore, it requires more than a discourse between

academia and society which looks down on established problems. We need to establish forums which anticipatorily bring forward expectable societal problems caused by new research developments and make them subject to open discussion. As scientific breakthroughs usually happen in highly specialised disciplines, it is all the more important to establish *inter- and transdisciplinary structures and discourse forums* which do not leave the consequences of such innovation only to the economic power play, but also put them into a context concerning the whole of society. Starting from this approach, further reaching challenges are easier to handle.

Comprehending participation and competence as duties

The development of realisable solutions with chances of success is presently practicable only if society is involved. Thereunto, adequate *participation approaches* are to be proved, as solutions may not be realised without asking all involved parties. According to particular problem situations, society actors are adequately involved: representatives of technical expertise and of production interests on the one hand and non-governmental organisations, civil and consumer movements on the other.

Not only does academia need to become more open minded, but it needs to transform into a *learning academia*, while comprehending itself as one actor interacting with other actors. In the framework of problem-oriented research, academia needs to pass through the school of participative interaction with society in order to raise the prospect of success. This requires an early enough identification of external experts and decision makers in to get them involved in the definition of problems and targets and in devising expectations. The compiled results, solutions and products must be handed on in adequate form to the target groups in order to enable them to decide and act adequately.

Sustainable development is a design task requiring different competences. How these are to be developed is a question any single University needs to answer on its own. Thus, especially the ability to network-thinking is challenged in order to establish and assess relationships between two formerly separated systems. In addition, network-thinking means to put one´s disciplinary know-how into a different context and to re-define it. Further essential competences are anticipatory and reflexive thinking.

In order to ensure everything mentioned above, extent, structure, organisation and quality of educational offers and research need to be characterised accordingly. In spite of the indisputable significance of the resource "knowledge", present survey results point out a degradation of Germany´s position compared to the rest of the world. Facing these deficiencies, educational matters linked to questions of innovation, transfer and co-operation are again moved into the centre of political and public discussion. Yet it lacks a courageous and progressive concept about this new beginning; a concept that places our educational system onto a stable and developable foundation. This does not excuse academia from doing its own to support this strive, and may it only be to prompt politics into action.

Developing organisation – enabling co-operation

The interdependence of problems and systems requires a *organisation development* that keeps up the pace. This is virgin soil for most universities and colleges, and so are the long overdue *co-operations with partners inside and outside academia*. Responsible for this are mainly legal and administrative guidelines running diametrically to a desirable organisation development. More flexible frame conditions are required which – according to the motto "structure follow function" – allow steps toward a target-oriented transformation management.

To an extremely high degree, the German academic system is built on different pillars. This applies not only to the relationship between different types of academic institutions (e.g. universities, colleges and universities of applied science) or between research organisations. It also applies to the hierarchical body within those institutions and organisations. Their vertical and paralysed structures prevent a problem-oriented and cross-institutional way of work. Several targets need to be achieved: Renunciation of the pillar-like vertical structures. The trend needs to turn toward horizontal structures of dense interweavement. The State Acts for Higher Education need to be reformed concerning these crucial matters – not concerning thousand and one negligibilities. Yet the organisational task reaches further into academia.

We have to accept the fact that teaching and research form two interacting yet extremely different structural elements of higher education. Only then is it possible to organisationally realise the connections between the single elements in different forms. Also, we need to appreciate that modern science evolves in a heterogeneous variety of differentiated disciplines, subject cultures and theories.

Appreciating difference and variety and rejecting problematic standard explanations enables a change of perspective. The focus can then turn toward the relation between different elements of a fragmented science scenery. Based on the central idea of a science committed to sustainability, we may reflect in what organisational forms these relations should be structured and with which problems and matters need to be dealt.

Orientation on both sustainability, inter- and transdisciplinary and on cross-subject co-operation does not imply a philosophically predetermined unity. The *unity of science* is simply meant as a regulative idea, expressing that the way towards unity lies far ahead of us. Considering these thoughts, teaching is to be assessed separately with special attention to its relation towards other structural elements.

Striking new paths in teaching

Initiated by international agreements, bachelor and master courses will prevail as teaching structures for academic professions. Their concepts principally offer the chance to organise education for academic professions according to the educational target of high and responsible methodical and subject competence combined with mental autonomy. With mere re-definition of existing subject matters and structures on the one hand and a rigorous regimentation movement pushed forward by accrediting agencies on the other, these goals and targets are seriously compromised.

On the contrary, we need an extensively improved flexibility of deadlocked structures, especially concerning teaching organisation. However, we lack qualified staff for such a qualitatively and quantitatively adequate mass education.. These two different tasks - breadth teachings and elite education - demand a high organisational effort, highly qualified teaching staff and investment in high quality research. The latter is occasionally kept quiet while thinking about new teaching structures.

Without high qualified fundamental and applied research there will be no correspondent *innovation-oriented education* for junior scientists and professions outside research. Study courses which cannot revert to such innovative research will only produce mediocrity. Due to the permanent underfinancing of the Higher Education System and the self-deception about

"tunneling" a temporarily limited "student mountain" – Higher Education policy was never at a loss of such fancy metaphors – did such a mediocrity spread among the academic education of large student cohorts. Yet breadth education calls for *well-organised classes* with clearly structured contents and manageable mechanism of success control. For this purpose, extensive and didactically qualified teaching staff is needed which comprehends teaching as an essential task and not as a nuisance distracting them from their actual job in research.

Without new approaches in teaching, the new academia is not imaginable. Well-trodden paths and approaches need to be checked and abandoned, in case of doubt. When designing new teaching structures, we need to work toward "enabling". Didactically seen, the conditions of world-wide communication may be taken up and worked on regarding the aspect of integration and networking. The potentials of E-learning may be exhausted to a larger extent if academia accomplishes the following double task: first, to promote the use of technical possibilities in didactically sophisticated concepts by the wise combination of technique and pedagogics and, second, to implement these concepts in its own business. In addition, space for experimental and co-operative modes of teaching need to be created. The creativity of dedicated teaching staff members will be stimulated by incentives for good teaching. These incentives will upvalue the task of teaching as a whole.

Closing the chain by co-operation.

The perception of academia's role as a central institution of sustainable know-how production and dissemination among society requires a network with research institutions outside academia. Universities, colleges and research institutions outside academia are complementary pillars of the academic landscape with a considerable potential for mutual enrichment. This applies for both research institutions outside academia (Max-Planck Society, Fraunhofer-, Helmholtz-, Leibniz Institutes, free institutes) and for research capacities in the business world.

Co-operation based on the division of labour with research institutes outside academia is of high importance to the academia of tomorrow for several reasons: academia is integrated into broader research contexts; the chain from disciplinary fundamental research to problem-oriented applied research can be closed; thus the societal role of academia is strengthened; co-operation closely introduces academia to those new subjects arising from societal problem situations.

The consideration of social concerns is easier based on academia's own competence of finding topics. Thus, junior scientists get the chance for a close look into problem-oriented research and practice outside academia. In addition, new addressees for academic research may be contacted. Finally, co-operation facilitates utilization of scientific infrastructure such as is maintained by institutions outside university. All this may lead to positive reactions for co-operations within academia and for know-how transfer.

Modernizing transfer by co-operation

Academia hides potentials which should be activated for future-oriented innovation processes. Particularly the *interaction of various disciplines* "underneath one roof" offers enormous possibilities to deal with central societal and global problems. However, this requires more initiative and co-ordinated management within academia. Up to now, most transfer offers are initiated by single scientists and bound to a certain subject. Sustainable and attractive developments in academia as recommended above will only arise when co-operation possibilities are fathomed to be more target-oriented across faculty boarders and across scientific institutions.

Co-operation comprises the chance to counteract airs and graces of status and competition and subject-specific reputation patterns. For this, academia needs democratic and professional structures in know-how transfer. Instead of offering single services on the level of "warehouse catalogues" (as a reflection of the inner discipline-oriented composition of academia), academia needs a *co-ordinated appearance* with problem- and future-oriented, publicly accessible offers. Only an innovation policy designed as mentioned above will be able to provide academia with a reputation according to its societal remit. Thus it is essential that academia opens itself to society to a larger extend than hitherto. For this purpose, different academia-centred organisational considerations should be applied in order to further develop co-operation inside and outside academia.

Science and arts are public

All this leads to the following truths: Science within academia must be public science. First of all and against the background of sustainability goals, academia needs to clarify how to meet the

huge challenge of responsible dealing with the chances, consequences and risks of science and technology development.

A foremost principle is the *disclosure and transparency* of scientific goals, procedures and findings. Only such a disclosure enables the expert and general public to get an idea of the complex problems and consequences of arts and science and to enter a communicative exchange. The *dialogue in society* is a constitutive element of the new academia, for good reasons:

Research, teaching and technology development are – considering their economic, political, military, social, ecological and cultural relevance – no private matters of academia members but rather public goods and processes of public concern. Only the public dialogue within society about goals and consequences of arts and science can guarantee that responsibility in and for science may be taken and that scientific findings will lead to a humanitarian progress.

V. Compression - Direction – Demands

It is absolutely essential to emphasise some central ideas and to add distinct directions for further proceedings. It is not only pure chance that research, teaching and the training of a new generation of academics again moves into the centre as they still form the central remit of academia.

Today, research finds itself in a structural inconsistency: On the one hand, it becomes more and more specialized and based on labour division. On the other hand, research must integrate this specialisation – which goes along with top quality performances – into interconnected systems of thinking and action, in order to do justice to the increasingly important matters of complex interaction between human civilisation and natural environment on its global scale. This constellation poses new challenges for academia. Challenges that inevitably require more culture and education, increased public discourses and, above all, more inter- and transdisciplinary co-operation with *more feedback from the economic and social reality*.

So far, there is no university in Germany that does justice to this remit: inter- and transdisciplinary research on the horizon of sustainability. It was this deficiency that made us call

upon both academia and the people in charge within the federal and state governments to face this remit of re-orientation. The preservation of the world prestige of German academia requires both a broad and detailed process of self-inspection and the according support by the means of state funding. Following aspects need to gain high importance:

1. *Academia should inspect its inter- und transdisciplinary potential and put it to comparison in discourse with other institutions. This is the only way to establish and to define the relevant fields and strategies of research for future matters. Congresses called in for this purpose alone may confer structure and liability to this autonomous search for a future of its own.*

2. *In discourse with society, the ability to participate in the orientation processes for enhanced sustainability needs to be strengthened by improved education and know-how transfer. One crucial aspect for this matter is the ability to think foresightedly and interconnectedly, and to critically inspect existing ideas. Besides, the competence of intercultural communication and co-operation needs to be improved. For this purpose, structure, extent, organisation and quality of research (particularly in humanities and social sciences) and teaching need to be enhanced.*

3. *Against the background of culture and education geared to sustainability, teaching structures for bachelor and master study courses need to be focused on transdisciplinary networking and on education to independence and responsibility. To ensure such a qualitatively and quantitatively adequate breadth education, the number of academic staff needs to rise substantially. breadth education in the required extent needs well organised lectures and seminars with clearly structured contents and manageable mechanisms of success control. breadth education needs didactically qualified teaching staff which comprehends teaching as academic profession with demands of its own. Committed to their remit, these staff members need to be sufficiently supported by the academic and economic system.*

4. *Also in the continuing academic education (doctorate, PhD), the interdisciplinary teaching and research structure needs to be enhanced. The specialisation while getting introduced in the according research practice is to be complemented and integrated into interdisciplinary questions. As a consequence, exam and assessment criteria need to be*

changed thoroughly. Inter- and transdisciplinary teaching and research may only be taken up by scientists who are trained in inter- and transdisciplinarity themselves.

5. *In the course of the recommended discourse about the new direction of academia, it will be found out that academia is equipped with remarkable research potential. Particularly the wisely co-ordinated interaction of disciplines offers unexploited possibilities to take up problems and to provide solution approaches. Admittedly, this requires freedom of organisation development inside university and co-operation and interaction with other players of society.*

6. *Both complex interaction between mankind and environment and global problems of human cohabitation may be studied practically only when arts, social sciences and humanities increase their co-operation with the natural and technology sciences. It contradicts the present necessities when universities start to completely close down or to dramatically downsize their art and humanity faculties.*

7. *The amalgamation of universities and colleges may lead to a strengthening of inter- and transdisciplinary and to an enhanced resource management, provided that integrative merging approaches exist. Yet those amalgamations are contra-productive which take place rashly under the pressure of shortened fundings. It is rather urgent to establish co-ordination positions which initiate and accompany the development of inter- and transdisciplinary research projects within and between universities.*

8. *The co-operation with forward-looking forces in economy, society and politics is to enhance drastically. Here, globality and sustainability must become important criteria for possible co-operations. Against the background of short-term production concerns, technical efficiency alone is not enough.*

9. *It is a misguided venture to strive for support of top quality research, which goes past the required autonomous process of profile establishment, with the help of more or less arbitrary cash injections. It rather requires a wide-ranging support strategy which is yet to be combined with structural renewals. The German Federal Government should seriously reconsider its present elite concept. The German Federal Ministry of Education and Research (BMBF, Bundesminsterium für Bildung und Forschung), is invited to participate in the recommended process of self-inspecting resulting in an enhanced ability to determine those priorities to be financed.*

10. *To transfer the unique responsibility for academia and its further development to the Federal States and to further undermine or even to repeal the Framework Act for Higher Education would be a step backwards in higher education policy. To get lost in the federal particularism equals an unnecessary self-weakening. Whoever strives to strengthen the world prestige of German academia should instead focus his own forces.*

We do not take it upon ourselves to prescribe academia and higher education policy which path to take in the future. But we are strongly convinced that our recommended self-inspection on the horizon of sustainability – combined with more autonomy und responsibility for all universities and colleges – will lead back to a stronger self-awareness and to the release of considerable capacities in teaching, research and knowledge transfer.

VI. Epilogue: to release impulses

The prologue took offence, the memorandum shall initiate processes. It does not comprehend itself as a closed concept but rather as an introduction to a process which, if possible, shall take effect right in the middle of academia and then be continued from there. The memorandum takes a firm stand since only this is conductive to the discussion. This memorandum is compiled by people of most different professional origins, who placed this order with themselves.

Whatever is possible in small-scale should be possible in large-scale. Self-organisation helps academia and science: The example could be excitation. In light of the apathy that fell down on academia like mildew, such excitation must be supported by thoughts that hit the core of the problems and at the same time reveal paths to their solution. Maybe other consequences are drawn at this point, but exactly here begins the discussion which is desired by the authors of this memorandum. It could not be the concern to integrate the matters and problems of single subjects and disciplines; they had to stand back behind the whole. Thus, not everybody will have the feeling of being addressed to the same extent. But if they take a look from their point of view on the guideline ideas developed above, then they will hopefully find themselves in a process in which they want to be actively involved with their own experiences.

Academia and Science are two issues far too important to be left to administrations and agencies. Once again, the members of academia have to take responsibility for these issues in order to turn them into their own. To the same extent as this happens, and academic members comprehend their remit on the horizon of a changing world society, to that extent academia will become an open place for a future workshop rich in ideas. Independence and self-reflection will be at home there, just as a responsible handling of this most important public good called "Science".

Gruppe 2004 (Group 2004)

The Group 2004 is a self-appointed interdisciplinary assembly of professors, all being committed to higher education policy. With our memorandum "Re-thinking Academia – Reorientation on the horizon of sustainability" we want to contribute to the actual discussions about reforming the higher education sector.
Our common concern arose from the discontent with the dominating obsessions within the actual public discussion (e.g. elite universities and related initiatives). In contrast, the memorandum wants to break new grounds for universities to handle the complex problems of our changing global society.

The following people belong to the Group 2004:

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