

Opinion of the European Economic and Social Committee on the 'Communication from the Commission to the Council and the European Parliament — researchers in the European Research Area: one profession, multiple careers'

(COM(2003) 436 final)

(2004/C 110/02)

On 18 July 2003 the European Commission decided to consult the European Economic and Social Committee, under Article 262 of the Treaty establishing the European Community, on the above-mentioned communication.

The Section for the Single Market, Production and Consumption, which was responsible for preparing the Committee's work on the subject, adopted its opinion on 2 February 2004. The rapporteur was Mr Wolf.

At its 406th plenary session of 25/26 February 2004 (meeting of 25 February) the European Economic and Social Committee adopted the following opinion with 103 votes in favour and one abstention.

1. Summary

1.1 The Committee has pointed out in the past that human capital is the most sensitive and valuable resource for research and development and that it supports the Commission's efforts to maintain and develop human resources.

1.2 The Committee therefore welcomes the Commission's communication on problems facing career researchers in the EU as well as the proposals and initiatives it sets out. It wholeheartedly supports the Commission in its efforts to bring about substantial improvements to the current situation and calls on the Member States to contribute to this goal. There is an urgent need for action.

1.3 The Committee agrees with the Commission that improvements are needed both in relation to researchers' contracts and to the adaptation/portability of all aspects of social security and retirement provision, which are so important for all types of mobility.

1.4 As long as these requirements are not being met, as a result either of an incomplete European internal market or of inadequate arrangements in individual Member States, the Commission should, for example in the framework of its mobility programme, compensate as far as possible for the remaining shortcomings and create more far-reaching incentives. Family cohesion and related issues are particularly important here.

1.5 The Committee also points out, however, that the following incentives are needed if people are to embark on a career in research: attractive contracts for individual researchers reflecting the importance of research and development, and planning certainty for the funding of research institutes and industrial research laboratories, involving a long-term commitment. Research policy must not be a prey to short-term budgetary planning or policy experiments. Rather, it should set out appropriately to promote the potential and capacity of researchers on the basis of self-reliance and to the benefit of the community.

1.6 The greatest discoveries are not the result of specific goals but rather of attempts to reveal the laws of nature. Being able to do this with adequate resources and free of political interference is not only part of the fundamental freedom of research, but also — in an appropriate balance with targeted research and development — a precondition for future progress and prosperity.

1.7 The Committee is very concerned that in many Member States these conditions are not being met to a sufficient degree, if at all. Apart from the well known and serious economic consequences of this, this failure is also the source of a worrying brain drain, with the best young researchers leaving, usually for the USA.

1.8 The Committee therefore appeals to the Council, the Parliament and the Commission, but particularly to the Member States and European industry, to honour their repeatedly stated commitment to increase investment in research and technological development to 3 % of GDP by 2010. Investment in research and development which bears comparison with competing economies is a basic precondition for achieving the Lisbon objectives.

1.9 The Committee also supports the individual measures proposed by the Commission, such as the European Researcher's Charter and the Code of conduct for the recruitment of researchers. Both texts could be very helpful in many cases, with the strong reservation, however, that the application of these texts (as proposed by the Commission) must be voluntary and must on no account lead to over-regulation (excessive bureaucracy) in an area which is in any case in some respects already over-regulated.

1.10 The guiding principle of research policy must remain the Lisbon objectives. Thus, competition between research systems and institutions for the best structure, facilities and personnel policy must be allowed and supported and not hampered by over-regulation. The conduct of the majority will be guided by the example of the successful. The successful must be recognised, supported and allowed a free hand within ethical and legal limits.

1.11 Incentives and selection procedures for research careers, which should begin in schools, should be structured and achievements acknowledged in such a way that a sufficient number of the brightest and best will opt for an (academic) scientific training, with the pick of the bunch taking on a leading role.

1.12 As well as the researchers themselves, society also invests in the acquisition by researchers of the necessary broad and demanding basic and advanced specialised knowledge. Policy-makers, on behalf of society, thereby take on responsibility for ensuring that this investment is put to the best possible use. This must include providing researchers with appropriate career paths with attractive opportunities for branching out, without the danger of finding themselves at a dead end. The Committee supports the Commission in its efforts to carry out this task.

1.13 A very important aim, which is also stressed by the Commission, is improving career mobility between academia and industry and stepping up exchanges of staff. Despite progress in some areas much remains to be done. The significant increase in industry's commitment to research and development which is called for could contribute to this.

1.14 In order to protect researchers from an excessive burden of administrative tasks and problems, including related active and passive assessment procedures, a situation should be avoided where too many separate vertical as well as horizontal (parallel) approval and guidance bodies are involved, as this will not only unnecessarily reduce efficiency and place the most able under unnecessary work pressure but also lead to unclear and in some cases mutually contradictory requirements and decisions.

1.15 Society and policy-workers must ensure that the conditions for the emergence and continuation of excellence and top-level performance exist or where necessary, are created.

1.16 For its numerous specific comments and detailed recommendations the Committee would refer to the chapters of this opinion set out below.

2. Introduction

2.1 In January 2000, the Commission adopted a Communication proposing the creation of a European Research Area (ERA) ⁽¹⁾. The Committee adopted a comprehensive and supportive opinion ⁽²⁾ on the subject in which it addressed problems of mobility and those aspects connected with a career in science and suggested appropriate measures to deal with

these problems. The Committee has since discussed the subject in opinions ⁽³⁾ on other Commission documents and suggested appropriate measures.

2.2 In this communication the Commission — in the context of the Lisbon objectives and the decisive role of research and development in achieving these — addresses the important question of professional and career opportunities for researchers in the European research area.

2.3 The Commission writes that 'the Communication reveals structural weaknesses as well as marked differences concerning each of these elements, according to the sectors in which researchers operate or the geographical, legal, administrative and cultural environments in which they work. These differences and the lack of openness of researchers' careers in Europe, prevent the development of proper career perspectives at European level as well as the emergence of a real employment market for researchers in Europe, whether considered from a geographical, sectoral, or gender perspective. These differences also have significant repercussions on the attractiveness of young people for careers in RD, as well as on the overall public recognition of researchers'.

3. Content of the Commission Communication

3.1 The communication aims to analyse the different elements which characterise the profession and defines the various factors which condition the development of researchers' careers at European level, namely: the role and nature of research training, the differences in recruitment methods, the contractual and budgetary dimension, and, finally, the evaluation mechanisms and the progress perspectives within the career. The communication is therefore very broad and comprehensive in its scope, making it extremely difficult to give a brief summary of its content - where this is not specifically discussed below.

3.2 The communication deals, inter alia, with the following main themes:

political background; definition of a researcher; career prospects; workforce needs; public recognition of careers in R&D; pathways between academia and industry; European dimension; gender differences; factors shaping careers in R&D; research training; environment; doctoral programmes; recruitment methods; employment and working conditions; deregulation in the academic career system; remuneration as career incentives; need for alternative tenure opportunities; evaluation systems; proposed actions and initiatives.

⁽¹⁾ COM(2000) 6 final, 18.1.2000

⁽²⁾ OJ C 204, 18.7.2000

⁽³⁾ OJ C 221, 7.8.2001 and OJ C 95, 23.4.2003

3.3 As part of the proposed measures and initiatives the Commission will, *inter alia*:

- set up a High Level Group in order to identify more examples of good practice related to different employment opportunities, such as intersectoral mobility or new tenure track models, and disseminate them widely to the research community;
- launch the development of the 'European Researcher's Charter', a framework for the career management for human resources in R&D, based on voluntary regulation;
- outline a 'Code of conduct for the recruitment of researchers' based on best practice, to improve recruitment methods.

4. General comments

4.1 The ESC is extremely pleased that in its communication the Commission addresses the important and in the past neglected issue of research careers. The Committee entirely agrees with the Commission that 'human resources are to a large extent the key of research efforts, excellence and performances', and it supports the Commission in its objective of tackling this problem in a Community context. The Committee pointed out in an earlier opinion ⁽⁴⁾ that human capital is the most sensitive and the most valuable resource for research and development and that it therefore supports the Commission's efforts to enhance human resources. The Committee sees a need for clear improvements here and is glad that the Commission intends to act.

4.2 As well as the researchers themselves, society also invests in the acquisition by researchers of the necessary broad and demanding basic and advanced specialised knowledge. Policy-makers, on behalf of society, thereby take on responsibility for ensuring that this investment is put to the best possible use. This must include providing researchers with appropriate career paths with attractive opportunities for branching out, without the danger of finding themselves at a dead end. The Committee supports the Commission in its efforts to carry out this task.

4.3 But the Committee also points out that successful research and development requires appropriate, competitive, and unfortunately also often expensive equipment (large

apparatus) and infrastructure. It also entails a demanding phase, extending over a period of years, of building the teams involved and getting them up to speed, while also requiring the necessary budgets for the scientific exploitation of these resources.

4.4 Political and business decisions are needed to conduct research on a broad and long-term basis, to provide sufficient resources to this end and to guarantee planning certainty. The latter factor in particular plays a decisive part in motivating young people to seek a career in research, i.e. in obtaining, retaining and making optimum use of human resources.

4.5 The Committee is therefore very concerned that these conditions are currently not being adequately met, if at all, in many Member States. Apart from the well known and serious economic consequences of this, this failure is also the source of a worrying brain drain ⁽⁵⁾, with the best young researchers leaving, usually for the USA.

4.6 The Committee therefore urgently appeals to the Council, the Parliament and the Commission, but particularly to the Member States, to honour their commitments, e.g. those entered into at the Barcelona European Council, and increase investment in research and technological development (RTD) to 3 % of GDP by 2010 and at the same time ensure planning certainty and research freedom — particularly with a view to sufficient fundamental research ⁽⁶⁾. Investment in research and development which bears comparison with competing economies ⁽⁷⁾ is the basic precondition for achieving the Lisbon objectives, i.e. making the European Union the most competitive and dynamic knowledge-based economy in the world by 2010.

4.7 The Committee would draw attention to its earlier recommendation ⁽⁸⁾ that increasing Community R&D investment by 50 % be made a medium-term policy objective for the period after the sixth R&D framework programme.

4.8 This must obviously be complemented by effective measures designed (i) to acquaint young people with science and research and (ii) to give greater weight to the teaching of science, technology and mathematics in school curricula and to present these subjects in an attractive way. Research and development are the foundation of our current way of life and they sow the seeds of future innovation, prosperity and peace ⁽⁹⁾.

⁽⁵⁾ A two-way movement of scientists between Europe and, for example, the USA is of course extremely useful and sensible from the point of view of exchange of experience and networking of knowledge and methods. This should not, however, be a one-sided brain drain of the best young scientists, of the kind encouraged by the present situation. In this way economic value is not added in the EU, where the heavy investment in training was made; instead it benefits a competing economy

⁽⁶⁾ See also point 4.1.1.3.

⁽⁷⁾ 'Dual purpose' R&D investment in general scientific and technological research part-funded from the defence budget (e.g. USA) is an important component of this kind of comparison.

⁽⁸⁾ OJ C 260, 17.9.2001

⁽⁹⁾ OJ C 221, 7.8.2001, points 3.2.3 and 3.2.4

⁽⁴⁾ OJ C 204, 18.7.2000

4.9 There is, however, insufficient public awareness of the importance of, preconditions for, and scope of this issue. Its importance is also insufficiently reflected in school curricula and teaching.

4.10 As the Commission rightly points out, the motivation of talented young people to opt for an academic training leading to a career in research, and the subsequent career decisions of trained scientists as to the institution or country where they wish to work also depend on social attitudes and the importance which society attaches to these activities.

4.11 The value attached to research is reflected not only in public opinion but also in the continuity, reliability and firmness of political and business decisions. This is true both at Community level and especially in the Member States. Human resources, material resources and work opportunities offering the necessary scope for career development and their financing are closely interconnected factors ⁽¹⁰⁾.

4.12 If the will is there, if the necessary material conditions are met and the decision is taken to promote research and development at Community level and in the Member States ⁽¹¹⁾, to reward researchers appropriately and to make a special effort in those Member States in which catching-up is needed, it will be easier to solve the other problems highlighted in the Commission's communication: 'These differences and the lack of openness of researchers' careers in Europe, prevent the development of proper career perspectives at European level as well as the emergence of a real employment market for researchers in Europe, whether considered from a geographical, sectoral, or gender perspective'.

4.13 Careers in research in the European Research Area necessarily require mobility and flexibility. This should not, however, be at the expense of personal and family living conditions and social benefits. The Committee therefore supports the Commission in its objective of working towards a solution for the associated problems, and calling for/guaranteeing an appropriate and internationally competitive contractual status for researchers.

4.14 The Committee on the whole supports the measures and initiatives proposed and planned by the Commission. It doubts, however, whether they will be sufficient to enable the

objectives set out in the communication to be met. The Committee considers the development of analytical studies, referred to several times in the communication, to be potentially helpful in individual cases but by no means sufficient.

4.15 Rather, the right political steps are needed, particularly on the part of the Member States. The communication contains no specific proposals to this end, however, or any discussion of the legal basis.

4.16 Calling for specific measures does not, however, imply over-regulation and resulting restrictions on the freedom to shape individual approaches or allow competition between alternative approaches.

4.17 The Committee therefore also recommends that the experience already accumulated in the implementation of thematic actions under the R&D and EURATOM framework programmes, the Socrates and Marie Curie programmes and the mobility programme ⁽¹²⁾ be exploited more than hitherto, and that in particular the experiences and problems of scientists with a 'European' career already behind them be taken into account. Possible legal obstacles ⁽¹³⁾ should be tackled at an early stage and appropriate solutions identified.

5. Specific comments

5.1 Chapter 2: Definition of a researcher

5.1.1 The Committee concurs with and endorses most of the content of Chapter 2 of the Commission communication.

5.1.1.1 The Committee understands why the Commission has used the OECD's definition of research from the 2002 Frascati Handbook: 'Research and experimental development (R&D) comprise creative work undertaken on a systematic basis in order to increase the stock of knowledge, including knowledge of man, culture and society, and the use of this stock of knowledge to devise new applications.'

5.1.1.2 The Committee nonetheless proposes that the Commission revise the definition particularly in view of the Lisbon objectives — to include key concepts such as science/nature and technology.

⁽¹⁰⁾ See, for example, Jürgen Enders (Ed.): *Academic Staff in Europe. Changing Contexts and Conditions* (2001), Westport, CT: Greenwood Press, 2001

⁽¹¹⁾ See also Committee Opinion OJ C95, 23.4.2003 on the Commission Communication — More Research for Europe — Towards 3 % of GDP.

⁽¹²⁾ The experience of institutions in the Member States, such as the Humboldt Foundation, should also be exploited.

⁽¹³⁾ European Court Reports 1996, p. II-02041; IA-00553, II-01471

5.1.1.3 The decisive importance of sufficient non-commercial primary fundamental research⁽¹⁴⁾ should be spelled out. The greatest discoveries are not the result of specific goals but rather of attempts to reveal the laws of nature. Being able to do this with adequate resources and free of political interference is not only an important part of the fundamental freedom of research, but also — in an appropriate balance with targeted research and development — a precondition for future progress and prosperity.

5.1.1.4 In this connection the Committee would refer to its earlier recommendation⁽¹⁵⁾ supporting all measures which help to reduce the polarisation between the humanities, social sciences and economics on the one hand and sciences/technology on the other, and bring them closer together. This also includes two-way dialogue on issues such as methodology, conceptualisation, and the evaluation and verification of results.

5.1.1.5 Moreover, knowledge should not only be broadened but also deepened. The Committee recommends that these comments be taken into consideration when revising the definition.

5.1.1.6 The Committee also notes that the Commission's proposed definition of a researcher makes no mention of the high degree of proven knowledge, ability and independence required in order to qualify for the description 'researcher'.

5.1.1.7 The Committee suggests the following slightly amended definition of researchers: 'Experts engaged in the conception or creation of new knowledge, products, processes, methods and systems, and in the management of the projects concerned, for which they are qualified by virtue of their training and experience'.

5.1.1.8 Where not otherwise specified, references to researchers should be taken to mean scientists or engineers with the requisite qualifications.

5.1.2 The Committee would refer to the description of research and development which it formulated in an earlier opinion⁽¹⁶⁾. In line with this description, the Committee also supports the Commission's intention of not restricting too greatly the possible career variants and paths in the R&D area.

5.1.3 Nevertheless, the Committee cannot in general concur with the statement that 'any of those careers will have to be treated and valued on equal footing'. Rather, the important thing is to identify and recruit particularly inventive and creative (potential) researchers — in order to achieve the expected knowledge gain and economic added value for Europe — and to retain them. To do this exceptional opportunities and incentives will have to be created.

⁽¹⁴⁾ Here too very expensive large equipment, the construction of which itself requires pioneering technological achievements, is often needed.

⁽¹⁵⁾ OJ C 221, 7.8.2001, point 3.9.1

⁽¹⁶⁾ See OJ C 221, 7.8.2001, point 4.7: 'Research is a step into the unknown and the approaches adopted by the individual or by the group vary and complement each other according to need, talent and temperament. Researchers are managers, engineers, collectors, hair-splitters or artists. Research is groping in the mist, hunches, surveying an unknown landscape, collecting and collating data, finding new signs, tracing underlying connections and patterns, recognising new correlations, developing mathematical models, developing the necessary concepts and symbols, developing and building new equipment, searching for simple solutions and harmony. But it is also confirming, making sure, expanding, generalising and reproducing.'

5.1.4 But these outstanding abilities and pioneering achievements are particularly difficult to pinpoint using conventional assessment models, which are moreover open to abuse.

5.1.4.1 One source of difficulties is the behaviour of certain authors who tend to quote each other in publications, forming a 'citation cartel' and thus procuring advantages for themselves in any schematic assessment.

5.1.4.2 Moreover, in some cases major discoveries have been published, recognised and quoted in the literature only after a certain delay.

5.1.4.3 Personality cannot be accurately assessed in a formal, schematic way. Rather, we must call on the experience and knowledge of the leading representatives of each branch of the scientific community in which achievements are being made or are expected (although even then mistakes, sometimes of historic proportions, are made).

5.1.5 In this context, with regard to the 'code of conduct for the recruitment of researchers' proposed by the Commission (see point 5.2.5), the Committee recommends that it be ensured that its — admittedly voluntary — application does not lead to over-regulation and thus rigidity.

5.1.5.1 The Committee does not deny, indeed it stresses, that transparency and equality of opportunity must be ensured for all applicants within the EU and above all the proportion of women applicants increased. In this context it acknowledges the potential usefulness of a code of this kind in achieving this important objective.

5.1.5.2 In view of the very varied requirements for their respective tasks and the different cultures of leading research organisations⁽¹⁷⁾, however, the Committee recommends that the experience and knowledge of the relevant scientific community be exploited to complement formal, generalised assessment methods and recruitment procedures. Ultimately, it has to be ensured that European research institutions are attractive enough and that they have the will and the opportunity, as well as the scientific and administrative tools, to compete successfully against global competition for the world's best brains.

5.1.5.3 The Committee therefore recommends that individual instances where the wrong approach has been adopted or where mistakes have been made be dealt with on a case-by-case basis, and that general (over-)regulation be used only as a last resort.

⁽¹⁷⁾ Thus for example, at the Max Planck Institute scientists are not usually sought and recruited by way of vacancy notices. The aim, rather, is to recruit the most suitable candidate for the task in question from among those scientists well known in the worldwide community for their achievements.

5.1.6 The concept of 'equality of opportunity' is therefore also difficult to interpret in view of differences within the Member States and within the research fields, and a more flexible approach is therefore required.

5.1.7 With regard to the categories of research addressed, such as fundamental research, strategic research etc., and the definition of these, the Committee would refer to the recommendation made in earlier opinions ⁽¹⁸⁾, particularly with regard to the internationally accepted concept of 'applied research' which ought to be used ⁽¹⁹⁾, and it recommends that this question be re-examined at the appropriate time by a group of experts.

5.1.8 Other aspects of research careers

5.1.8.1 Actual research activity, i.e. work on scientific and technological problems, involves related planning, entrepreneurial, administrative and assessment tasks, which to a large extent can only be performed by scientists.

5.1.8.2 These include programme proposals, application procedures, reporting, publications, personnel decisions and related (active and passive) assessment procedures.

5.1.8.3 If, however, these tasks are required in an uncoordinated way of too many institutions and sponsors participating in the programme, in different formats and degrees of detail and with different timetables, the work involved will take up more of researchers' time than their actual research work.

5.1.8.4 In view of the proliferation of application, assessment and monitoring procedures, the Committee recommends that the Commission look into this question and work out coordinated procedures which strike a sensible balance and prevent a welter of paper-generating but unproductive activity ⁽²⁰⁾. Any over-bureaucratisation of research must at all costs be reduced.

5.1.8.5 Here the Committee would recommend that the Commission also take a fresh look at its own application and award procedures and the criteria associated with these. The scientific community is often critical of these, and it is often asked whether such applications in view of the substantial amount of work involved and the very low success rate are still worth making. Also, procedures and criteria (e.g. for the award of grants) should not be changed too often.

5.1.8.6 It is also important to prevent the emergence of too many separate vertical (as well as horizontal/parallel) approval and guidance bodies (and procedures), as this will not only

reduce efficiency but usually also lead to over-detailed, unclear and in some cases mutually contradictory requirements and decisions.

5.2 Chapter 3: Prospects for careers

5.2.1 Prospective workforce needs in R&D: the Committee shares the Commission's concern about the clear and worrying discrepancy between macroeconomic analyses and forecasts ('job opportunities for thousands of researchers') on the one hand and less favourable actual labour market opportunities or lack of opportunities on the other. Most universities and research institutions are at present actually experiencing reductions in private and public-sector budgets and are therefore unwilling to recruit new staff, and even less willing to offer long-term employment contracts.

5.2.1.1 Even industry, e.g. the very research-intensive pharmaceuticals industry, has difficulty in keeping young researchers in Europe ⁽²¹⁾.

5.2.1.2 Moreover, publicly funded universities and research institutions are required by their funding bodies to employ a significant proportion of their scientists on a series of temporary contracts, so as to be able to react more quickly to budget cuts or imposed programme changes.

5.2.2 In this connection, the Committee would highlight another important aspect: scientists working in academia or publicly funded research institutions are usually paid in accordance with public-sector pay scales.

5.2.2.1 These rates of pay are generally significantly lower than in the private sector. The Committee endorses the Commission's statement that: 'Salaries constitute one of the most visible issues of career recognition. Salaries of researchers seem to have fallen behind, for example in comparison with those who are engaged in management positions'.

5.2.2.2 Lower public-sector pay scales are normally justified by the generally greater security of public-sector careers (civil servant, teacher, judge etc.).

5.2.3 Many scientists are, however, deliberately denied this higher level of job security on grounds of greater flexibility in the planning of research, budgeting and personnel policy.

5.2.3.1 This disadvantage is, however, by no means counter-balanced by other advantages or guarantees. A further problem is that salary ranges are not sufficiently wide to take proper account of performance and commitment.

⁽¹⁸⁾ INT 197, CESE 1588/2003 of 10.12.2003, points 4.5.3 and 4.5.5

⁽¹⁹⁾ OJ C 204, 18.7.2000. See points 7.1 and 7.1.1: 'Research and development basically form a system embracing different research categories and thus also stages of scientific development of potential new technologies: basic research, application-oriented research, 'encyclopaedic' research (e.g. to complete our knowledge about substance properties, new substances, active substances, etc.), technological development and product and process development (...) The distinction between these research categories is sometimes an artificial one, and innovation results from interaction and cross-fertilisation between them.'

⁽²⁰⁾ See also OJ C 95, 23.4.2003, Appendix, points 8 et seq.

⁽²¹⁾ Interview with Dr. D. Vasella, chairman of Novartis (Austria) – Standard 26.1.2004, p. 3

5.2.3.2 It would, however, be wrong to seek to impose temporary contracts, with all their consequences, in order to achieve the flexibility and mobility which is genuinely needed in the research field, while pay also remains inadequate.

5.2.3.3 What is therefore actually needed is more appropriate rates of pay, with the range substantially extended at the upper (and only the upper) end and greater flexibility for adaptation to individual cases. This would make it possible to achieve the objectives referred to above by incentive. Universities and research institutions therefore need more post-doctoral openings with reliable tenure track conditions. The current lack of appropriate opportunities and career prospects, together with the risk of unemployment, are the main reason why the best researchers are currently seeking to build their future in the USA ⁽²²⁾ and are hardly likely to return.

5.2.3.4 The problem has hitherto been compounded in the case of scientific researchers who have to undergo a long period of training (doctorate, qualification as university lecturer). Here change is urgently needed if research is to be made attractive as a career.

5.2.3.5 A typically ⁽²³⁾ discouraging feature of the 'career' of young research scientists is the fact that initially

and again after every change of job or 'career move' they are often given temporary contracts ⁽²⁴⁾ (e.g. for a total of up to 12 years).

5.2.3.6 Once these contracts end, which in most cases has nothing to do with unsatisfactory performance but is, rather, dictated by administrative rules or rules on staff rotation and particularly by budget cuts, researchers consequently risk having to abandon their research careers, or in many cases even becoming unemployed.

5.2.3.7 Researchers with this kind of contract therefore run the risk of reaching a career dead end at an age (e.g. around 40) where changing direction and making a new start on the labour market is already extremely difficult, in part because of industry recruitment policies which favour recent graduates.

5.2.3.8 It should also be pointed out that these same research scientists have often passed a strict, multi-stage selection procedure, as only the best are offered the opportunity to undertake doctoral research after graduation and only the best

of the best are later offered a research post or junior lectureship.

5.2.3.9 In order to achieve competence and efficiency, let alone a leading position in a particular area of science, individuals and groups must first undertake demanding further training and work experience, usually over a period of years.

5.2.3.10 Furthermore, it is often necessary to develop and set up costly equipment and to establish a stimulating research climate, with all the associated organisational structures. This heavy investment in human capital and the necessary research infrastructure is another result of research which, in addition to the actual research findings, would be available for further exploitation.

5.2.4 Unemployment among well trained research scientists is therefore not only a social problem but also a loss to the economy of financial and human resources.

5.2.4.1 It is not only demotivating for the researchers affected or liable to be affected, but also a disincentive to students, when considering their field of study and future career, to opt for a difficult and demanding discipline. A further demotivating factor is the gap between enticingly upbeat public pronouncements and the off-putting — and in some Member States almost disastrous — reality of the labour market and career prospects.

5.2.4.2 In this sense, the fact that many scientists, particularly young scientists, at present seek and find job opportunities suited to their abilities outside the EU, above all in the USA, is in fact to be welcomed, at least for as long as European institutions are unable to offer them appropriate openings. The fact that this is enormously damaging to the EU and highly advantageous to the host country should be made clearer in policy-making circles and to the general public.

5.2.4.3 The lack of economic attractiveness and considerable social risks of a career in research may be one of the reasons why, even at secondary school stage, so few children are interested in science and mathematics.

5.2.4.4 It is therefore hardly surprising, at times when research scientists are in demand, that there is a sudden perceived lack of human capital (see basic underlying premise of the Commission communication).

⁽²²⁾ Even among scientists from Russia, India or China, for example, working in EU research institutions, there is a tendency for the successful ones to accept job offers from the USA after a few years.

⁽²³⁾ The career profile outlined here may not apply in all Member States.

⁽²⁴⁾ In some cases this is complicated still further by employment protection rules.

5.2.5 As the Commission points out, it is therefore essential in the interests of the career prospects of researchers and for the achievement of the 3 % target ⁽²⁵⁾, to reduce the apparent divergence between economic needs in the EU on the one hand and microeconomic and fiscal behaviour (e.g. government), and the resulting personnel policies, on the other.

5.2.5.1 Research should therefore not be regarded in a proprietorial way. It should not be a prey to short-term policy experiments or budget constraints. Good and successful research must be long-term and should not be started, ended or redirected on a whim, e.g. as a result of economic cycles, budget crises or current political or planning trends; rather, it requires continuity, freedom and certainty. Only then will it be possible to eliminate the problems outlined above and prevent them occurring in the future.

5.2.5.2 As the Commission states, there is moreover an urgent need for suitable curricula and opportunities for branching out in order to avoid this kind of career dead-end, and instead to offer young people facing a career choice attractive and secure prospects.

5.2.5.3 It would also be helpful to promote greater mobility towards industry (see point 5.4) and teaching (e.g. making it possible to employ researchers for whom no stable employment is available at universities or publicly funded research institutions as teachers with research experience in higher educational institutions, particularly in view of the frequent lack of suitably trained staff with research experience).

5.2.6 The Committee therefore particularly welcomes the measures set out in the Commission's communication:

- Set up a High Level Group in order to identify more examples of good practice related to different employment opportunities, such as intersectoral mobility or new tenure track models, and disseminate them widely to the research community.
- Launch the development of the 'European Researcher's Charter', a framework for the career management for human resources in R&D, based on voluntary regulation.
- Launch impact studies to assess and benchmark the multiple career paths of researchers.
- Outline a 'Code of conduct for the recruitment of researchers' based on best practise, to improve recruitment methods.

However, the Committee recommends that its comments on these issues be taken into account.

5.2.6.1 The Committee recommends that the initiatives launched in some Member States ⁽²⁶⁾ in higher education be extended to non-university research organisations, and that care be taken to check whether the measures ⁽²⁷⁾ actually lead to the hoped-for improvements.

5.3 Chapter 3.2: The public recognition of careers in R&D

5.3.1 Public recognition of research is an extraordinarily important factor. The Committee wholeheartedly endorses the Commission's statement that 'The issue of public support for researchers is clearly linked to the ways science is perceived as a means to contribute to the development of society'.

5.3.2 The Committee also endorses the other points made in Chapter 3.2 of the communication. It would also point out, however, that the problems and difficulties of a career in European research, which the Commission communication sets out to overcome, are connected with the still unrealised completion of the internal market and are not sufficiently understood by the public, or in many cases even by politicians. There is therefore a particular need for politicians to be properly informed.

5.3.3 It would, however, be an oversimplification to seek the nub of the problem in a lack of public understanding and recognition of the importance of research and development.

5.3.4 Although it is true that the public are in general not sufficiently aware of the extent to which their prosperity is based on past research and development achievements, the majority of people do nonetheless have a degree of respect for researchers and their abilities.

5.3.5 The real problem is ensuring that politicians make consistent efforts to improve the personal and professional situation of researchers and to eliminate the disadvantages referred to above. The problems referred to above may also contribute to the lack of appreciation of researchers.

5.3.6 Ensuring that the necessary political will is there is unfortunately made more difficult by the fact that the promotion of research and development, and thus of careers in research, does not generally enjoy the kind of media coverage and hence public awareness which is needed in political terms; another problem is that researchers are too few in number to defend their professional and social interests in a sufficiently forceful and organised way.

5.3.7 Another related problem is the fact that the time lag between investment in research and development and tangible economic and cultural benefits is rather long and usually exceeds society's political attention span; also that the importance and potential of new discoveries usually filter only gradually into the public awareness rather than emerging suddenly and dramatically.

⁽²⁶⁾ e.g. the Lichtenberg programme of the Volkswagen Foundation

⁽²⁷⁾ e.g. Juniorprofessur in Germany (Translator's note: 'junior professorship' – a new class of university teaching/research post introduced under the reform of Germany's Hochschulrahmengesetz (higher education framework law) open to newly qualified PhDs and leading eventually to full tenure. It replaces the existing system of post-doctoral lectureships.)

5.3.8 The Committee therefore fully supports the Commission's statement that: 'In order to raise the political significance of research as crucial to the development of society, the link between the content of research and the net benefit to society must be clearly highlighted. Likewise, society should be better placed to recognise the role of research, the relevance of doing research and the value of careers in R&D.' Society should also be aware of the necessary operational conditions for excellent research.

5.4 Chapter 3.3 Pathways between academia industry

5.4.1 On this subject the Commission states that: 'Collaborative partnerships between academia and industry or private and public funded research organisations have emerged as a critical imperative necessary to sustain transfer of knowledge and innovation but it is still unclear how to structure such relationships, let alone how to exchange personnel or to promote common training programmes.' The Committee endorses this statement to a great extent, although it no longer regards the situation quite so critically.

5.4.2 However, the Committee also recognises the need for further improvements and for a better mutual understanding of working methods and career criteria.

5.4.2.1 An important question in relation to the desired curricula is why industry, when recruiting scientists and engineers, generally prefers recent graduates rather than experts with years of additional research experience, although their superior knowledge would accelerate the knowledge transfer of the most up-to-date methods and procedures.

5.4.2.2 The Committee here reiterates its previous recommendation⁽²⁸⁾ that the existing mobility programme ('industry host fellowships') be modified and stepped up, to provide those willing to consider this option with definite incentives for the required mobility, making sufficiently long exchange periods possible, and long-term exchange attractive for both sides. This could also create an incentive for industry to recruit older, experienced scientists.

5.4.3 In individual cases there has been progress. The obstacles described in the communication are, for example, less significant in relations between industry and technically orientated higher educational or research institutions.

5.4.4 But here too there is a need to ensure both national and European compatibility and portability/recognition of the various components of social security (such as sickness insurance, invalidity insurance, retirement provision, qualifying periods of work conferring pension rights, recognition of previous periods of pensionable service etc.).

5.4.5 Finally, it should be recognised that there are different kinds of gift and ability, some of which are particularly useful to industry where they can develop to the full, and others which are more suitable to a scientific university environment.

5.5 The European dimension of careers in R&D (Chapter 3.4)

This chapter contains a detailed analysis of the opportunities, tasks and problems inherent in this aspect of research careers.

5.5.1 The opportunities are to be found in a significantly enlarged employment market, which is particularly important for highly specialised experts, as well as being personally and economically important. Moreover, the importance of more European research careers should be stressed in achieving the Commission's objective⁽²⁹⁾, which the Committee supports, of 'a stock of material resources and facilities at the European level'.

5.5.2 The risk is whether professional experience accumulated in another Member State will be appreciated and recognised on the 'home market', with consequent career advantages, as well as in the lack of compatibility/portability/recognition of the various aspects of social security (such as sickness insurance, invalidity insurance, retirement provision, qualifying periods of work conferring pension rights, recognition of previous periods of pensionable service etc.).

5.5.3 This requires appropriate measures ensuring that changes of employer and place/Member State of employment, and movements between publicly funded research institutions in various Member States and industry etc., which are a typical and desirable feature of the career of a 'European' researcher, should not, as has often been the case in the past, be disadvantageous in relation to the requirements outlined above.

5.5.4 Specific solutions need to be identified and implemented if the objectives set in the Commission's communication are to be achieved.

⁽²⁸⁾ OJ C 204, 18.7.2000, point 8.2.2

⁽²⁹⁾ OJ C 204, 18.7.2000, point 9.6

5.5.5 Apart from implementing the relevant research programmes, it is therefore also necessary to make allowance for the personal circumstances typical of a career in European research, inter alia in relation to: pension arrangements, sickness insurance(!), the cost of removals, estate agents' fees, house purchase and renovation costs, children's education, family cohesion(!), unemployment and invalidity insurance, retirement provision, as well as tax-related⁽³⁰⁾ questions. Many existing laws, e.g. taxes on land purchase, are unfavourable to mobility.

5.5.5.1 A pan-European system of retirement pensions should, in particular, be established or, where already adopted, actually applied, so that pension rights can be retained in full or transferred on changing employer or Member State, without any overall financial loss to the researcher.

5.5.5.2 Another general problem is the researcher's spouse's or partner's job. In order not to jeopardise family cohesion, efforts should be made to identify or create suitable employment opportunities for partners. An official strategy⁽³¹⁾ should be drawn up in this area.

5.5.6 This view is shared to a great extent by the Commission, which writes in its communication: 'Finally, the promotion of the European dimension in R&D careers needs to be embedded in a structured and co-ordinated legal framework at European level which should guarantee researchers and their families a high level of social security thus minimising the risk (Committee's comment: the risk should be eliminated!) of losing already acquired social security rights. Within this context researchers should be able to benefit from the ongoing work at EU level aiming to modernise and simplify the co-ordination of the social security systems ... In this framework the specific needs of researchers and their families should be taken fully into account.'

5.5.7 The Committee nonetheless recommends that, as long as these objectives have not been achieved or until the proposed arrangements have entered into force, the relevant mobility programmes and their provisions be developed in such a way that they not only compensate for existing disadvantages but actually create additional, further-reaching incentives. Incentives of this kind are necessary both in order to make a European research career attractive even for top scientists and in order perhaps to attract such scientists (back) from the USA after all, for example.

⁽³⁰⁾ In some Member States researchers even have to pay tax on the reimbursement of mobility expenses!

⁽³¹⁾ In recognition of the problem, a joint event is, for example, being held by the Deutsche Forschungsgemeinschaft and the Stifterverband für die deutsche Wissenschaft on the subject of dual careers. See also www.kowi.de and www.dfg.de/wissenschaftliche_karriere/focus/doppelkarriere_paare/index.html

5.5.8 In order to make the expansion of the limited employment market (for scientists/researchers) arising from the realisation of the European Research Area even more effective, the Committee recommends that the Commission systematically develop and improve its existing Internet platform⁽³²⁾ — so as to ensure that all relevant job offers in the EU by research institutions, projects and universities as well as firms are listed in an organised way and with sufficient detail. (This should also be stipulated in the 'Charter'.) The Committee proposes that contact be made with institutions performing this task in the Member States.

5.6 Doctoral research, doctoral degrees

The Commission addresses the issue of doctoral researchers. The Committee considers that there are a number of questions involved here, namely (i) the role and situation of doctoral researchers and (ii) the need for doctoral-level scientists/engineers/researchers.

5.6.1 In order to be offered the opportunity to undertake a doctoral research programme, a candidate usually needs a first-class degree.

5.6.2 Accordingly, obtaining a doctorate can be regarded on the one hand as a further stage of academic training, and on the other above all as a passport to an independent research career.

5.6.3 Doctoral theses also entail the acquisition of other important general skills, such as the ability to carry out in-depth research, the ability to present particularly complex issues clearly in writing and orally, and, in the field of science and technology, and particularly in an international environment, use of the English language.

5.6.4 Doctoral researchers, as the 'rank and file'⁽³³⁾ of academic research, make an essential and significant contribution to research activity and thus to the objective of universities and similar research institutions.

5.6.5 Doctoral researchers therefore have a strong but usually unfulfilled claim to have their work⁽³⁴⁾ recognised as a fully-fledged professional activity (pay, social benefits).

⁽³²⁾ http://europa.eu.int/eracareers/index_en.cfm

⁽³³⁾ The term is graphic but not always accurate. Doctoral theses may contain outstanding pioneering work. In individual cases they have in the past contained Nobel Prize-winning discoveries (e.g. Mössbauer, Nobel Prize 1961, R.A. Hulse, Nobel Prize 1993).

⁽³⁴⁾ As long as it is the main, rather than a subsidiary, professional activity.

5.6.6 An inescapable feature of doctoral research is a degree of dependence on a supervisor, who is largely responsible for the assessment of the thesis.

5.6.6.1 The task and methods of supervisors should not, however, go so far that they remove the incentive, or even the need, for independent action on the part of the researcher, which is after all a qualification for the job.

5.6.6.2 Although in most cases the function and task performed by the supervisor are extremely helpful, in individual cases these may be abused. This may, for example, be a result of the inadequate remuneration of the doctoral researchers, leading to inappropriately heavy demands, essentially serving the scientific interests of the supervisor, and resulting in an excessively long period of research.

5.6.7 The Committee therefore recommends that the Commission consider a code of conduct on the role and treatment of doctoral researchers, that it initiate discussions on the subject and that the results be incorporated into the Charter.

5.6.8 In its communication the Commission also states that: 'industry seems eager to employ researchers without doctoral degrees, considering that those with a doctoral degree are too specialised ⁽³⁵⁾'.

5.6.9 Although it is a regrettable reality, and an obstacle to mobility between academia and industry, that industry prefers to recruit young recent graduates, the Committee cannot concur with this statement in its sweeping generality. In the chemical industry in some Member States and other scientifically and technically orientated sectors a doctorate, and a good one at that, if not an actual precondition for employment, is generally at least an important requirement for a successful career. (This does not generally apply to engineers.)

5.6.10 A doctorate is at all events a precondition for an academic career, including a career in publicly funded research institutions. (This does not generally apply to engineers.)

5.7 Scientific attractiveness and excellence

5.7.1 When young people opt for a career in research and decide where they would eventually like to work, one impor-

tant criterion is whether that country has attractive institutions of excellence in their field, where they can work alongside the most successful scientists, who serve as role models and set standards.

5.7.2 Society and politicians must therefore ensure that the conditions are in place, or are created, to nurture excellence and top-level performance.

5.7.3 However, excellence and the creation of elites are the result of a complex, laborious and lengthy process of development and selection which follows its own rules and depends on the conjunction of many important and interlinked factors.

5.7.4 Decisive among these are the outstanding examples set by particularly successful researchers, the attractiveness of facilities, management which fosters creativity and a wealth of ideas, the feeling of being involved in discovery or development and the reasonable expectation of all concerned to be able to develop their own potential and to contribute their own ideas, thereby gaining recognition.

5.7.5 All this can only develop and thrive on the basis of solid, broad and high-calibre university education combined with a varied research environment including a sufficient amount of pure research.

5.8 A European Year of the Researcher

5.8.1 The Committee welcomes and endorses the Commission's intention to organise a European Year of the Researcher in the near future.

5.8.2 The Committee sees this as a good opportunity to promote the research profession and its importance for society and the Lisbon objectives, as well as to strive for deeper mutual understanding between civil society and the scientific community.

5.8.3 The Committee recommends involving the relevant organisations in the Member States and scientific organisations operating at European level in this task and declares its willingness to play its own part in so doing.

Brussels, 25 February 2004

*The President
of the European Economic and Social
Committee*
Roger BRIESCH

⁽³⁵⁾ This statement relates to the question of industry's recruitment practices, discussed above. The practices referred to should be studied in depth and where possible improved.