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**Economic reforms and competitiveness: key messages from the European
Competitiveness Report 2006**

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1. INTRODUCTION: A NEW REPORT IN SUPPORT OF THE EUROPEAN STRATEGY FOR GROWTH AND JOBS

This Communication presents findings and messages from the Commission's European Competitiveness Report 2006¹.

The Competitiveness Report focuses mainly on analysing issues related to developments of productivity, as a key indicator for competitiveness over the long term. Competitiveness here is understood to mean a sustained rise in the standards of living of a nation or region and a level of involuntary unemployment as low as possible. At the level of an industrial sector, competitiveness is understood as maintaining and improving its position in the global market.

With the relaunched Lisbon Strategy for Growth and Jobs distinguishing between macroeconomic, microeconomic and employment challenges, the Competitiveness Report has been redesigned to contribute to a solid analytical underpinning of the microeconomic pillar of Lisbon strategy. From this also flows that the analysis of issues in this report has been brought closer to the policy agenda.

The present Communication does not aim at concluding with concrete proposals or an action plan. Its ambition is to support decision making by putting forward a number of policy relevant findings and recommendations resulting from economic analysis.

After a review of recent developments concerning growth, productivity and employment in Europe, the Report addresses various aspects relating to three of the four priority actions of the reform agenda that the Spring European Council of 2006 put forward: *knowledge and innovation, unlocking the business potential* and *towards an efficient and integrated energy policy*. Four chapters deal with, successively, the liberalisation of European energy markets, the Regulatory environment in the context of the Strategy for Growth and jobs, the financing of innovation, the concept of "Lead Markets" in innovation policy. In addition, the Report examines the competitive position of two high technology European industrial sectors, the production of Information and Communication Technology goods and services and the pharmaceutical industry. Finally, a statistical annex presents indicators of competitiveness at sectoral level.

¹ Commission Staff Working Paper SEC(2006) 1467, 14.11.2006: *European Competitiveness Report 2006*.

2. OVERALL COMPETITIVENESS PERFORMANCE: ENCOURAGING SIGNS THAT THE DISAPPOINTING PERFORMANCE IN IMPROVING COMPETITIVENESS OVER THE PAST YEARS IS BEING ADDRESSED

In the past decade, GDP per capita growth in the EU-25 has been lower than in the US and the growth rate of real GDP, labour productivity and total factor productivity in the European Union have been slowing down or remained stagnant during the 1990-2004 period. These trends have structural features and this awareness, shared among European policy makers, demands adequate policy responses. In 2000, the European Council agreed in Lisbon to re-launch European competitiveness. In 2005, the Lisbon strategy was revamped, with increased focus on policies aimed at delivering growth as well as more and better employment. In fact, the key areas of the “Growth and Jobs” strategy are concerned, among others, with boosting productivity growth by investing in Research & Development, improving European infrastructure, enhancing human capital and promoting competition. This would contribute to better take advantage of globalisation. This strategy is also to be seen in the wider context of the sustainable development requirement that present needs have to be met without compromising the ability of future generations to meet their own needs.

A first encouraging sign is the tendency towards higher employment rates in many EU Member States. This is to some extent the result of labour market reforms enacted in past years. Nevertheless, employment rates in most countries remain below the Lisbon targets.

However, the recent progress in employment rates in the EU came along with only small increases in labour productivity. This disappointing performance of EU labour productivity growth can be explained by both weak investment and by an overall slow total factor productivity growth rate. Total factor productivity growth remains low since the slowdown in the mid nineties. This demonstrates the need not to delay any further the reforms in line with the priorities agreed in the Strategy for Jobs and Growth. Productivity gains stemming from re-organization and reallocation of production, from improved labour skills, from the introduction of new products and processes, in particular through ICT, would contribute to increased investment demand and further progress in labour productivity in terms of capital deepening.

More recent developments point to an acceleration of economic growth for the EU, from 1.7% in 2005 to 2.8% in 2006. This would be the best EU-25 growth performance since 2000 and is accompanied by higher employment and productivity growth and a reduction of unemployment. The rise of oil prices has clearly had a negative, if limited, impact on European growth. Model simulations help quantify the effects of energy price variations in the long term and illustrate their wide variety over different countries and sectors. In spite of the increase of energy prices this year, the EU economy is clearly recovering very robustly. Together with the new governance of the partnership for Growth and Jobs, this provides a unique opportunity to vigorously pursue the necessary structural reforms.

3. DRIVERS OF COMPETITIVENESS

Energy market liberalisation: strong response to incentives makes careful policy design ever more necessary

The European energy markets have been going through a process of liberalisation since the early 1990s. The Report presents an assessment of some of the effects of liberalising the

European electricity and gas markets and discusses issues arising from liberalisation in general, including experiences outside the EU.

The findings suggest that the introduction of competition has generally resulted in more cost-efficient operations with part of the benefits accruing to the consumers. However, electricity and gas wholesale markets have turned out to be particularly vulnerable to market power resulting from both legacy industry structure and the specific characteristics of these markets. Incumbents continue to have a strong grip on production, imports and key infrastructure. Efficient regulators, in particular, are needed to address this concern. Competition on retail markets is yet to function properly in the majority of cases. This said, the energy Directives provide for universal and public service obligations as well as specific consumer protection rules.

Regarding R&D, evidence on effects on innovation indicates that, following liberalisation, a shift occurs in the composition of R&D efforts: the innovation focus of the companies moves away from (public-interest) technology innovation towards cost-reducing technologies and consumer services. While aggregate R&D spending appears to have diminished, the focus on efficiency-improving innovation seems to have increased. As a result, additional policy measures may be necessary to encourage fundamental energy research to recover its pre-liberalisation situation.

Both theory and evidence indicate that in liberalised markets, prices may fluctuate more in the short run and demand may need to adjust more often than before liberalisation to available capacity. While these price fluctuations are sometimes viewed as undesirable, the larger role of demand in clearing the markets is consistent with an increase in long-run efficiency. Another issue is that inadequate market design may lead to inefficiently low investments². This is especially the case if prices fail to reflect the real value of energy, resulting in lower rates of return or when inadequate unbundling leads network operators to favour their affiliate supply businesses. In regulated markets (i.e. infrastructure), devising mechanisms to foster efficient investments is necessary, especially where (cross-border) transport capacity is concerned. Factors such as complicated procedures imposed by public authorities may also contribute to lower investment. Insufficient investment in power generation risks resulting in electricity shortages and power cuts.

Findings from economic analysis included in the Report indicate that policy responses should firstly focus on clear allocation of rights and responsibilities of market players, especially during periods of scarcity. In addition, the promotion of more liquid wholesale markets, especially for forward contracts, will assist consumers in insuring against price fluctuations. Efficient markets require a higher degree of transparency; a mechanism at EU level to better monitor demand and supply patterns on EU energy markets, identifying likely shortfalls in infrastructure, supply and storage would contribute to enhancing transparency on security of energy supply issues within the EU.

Finally, according to both theoretical as well as empirical results, the impacts of liberalisation of the electricity markets on the environment are ambiguous. While reduction of prices would increase consumption of energy, increased fuel efficiency and shifts in technology mix,

² 'Market design' covers several components: wholesale markets, retail markets, fuel markets, capacity markets, congestion management mechanisms, balancing mechanisms.

caused by increased competition, can reduce emissions³. In general, liberalisation and environmental objectives are compatible. Liberalisation can also strengthen the effect of market based environmental instruments, such as the European Emission Trading Scheme.

Regulatory environment: a very broad adherence to the principles of better regulation in spite of unequal commitments

The improvement of the business environment through applying measures fostering entrepreneurship and through application of Better Regulation rules is today a shared goal within the European Union. The diffusion of Better Regulation instruments is therefore a clearly stated priority of the Strategy for Jobs and Growth. It is thus a very positive development that the National Reform Programmes (NRPs) that the Member States adopted in 2005 reflect the will to reform regulatory practices. These reforms are very complementary to the Better Regulation Initiative launched at Community level, which comprises a simplification programme for existing legislation, systematic impact assessments for new legislation, improved stakeholder consultation, as well as the measurement and reduction of administrative burdens. Work on setting quantitative targets for the reduction of administrative burdens is also under way.

Isolating the effects of regulation on the economy is fraught with difficulty. Nevertheless, the -still limited- economic literature in this area provides evidence that regulation can have significant positive or negative (if poorly designed) effects on economic performance and innovation. The Competitiveness Report analyses the multitude of measures which are being proposed in the NRPs and elsewhere across all EU-25 Member States in the area of Better Regulation. While these measures vary considerably in terms of their time-horizon, depth, degree of institutionalisation and likely effectiveness, most Member States do envisage one or more high-profile activities in this area. In addition, Member States present measures with visible short-term beneficial effects, such as one-stop shops for business registration. The NRPs and developments since their publication last year therefore represent a clear step in the right direction for the EU regulatory environment. The large differences observed between the measures proposed by individual Member States often reflect the fact that Member States are at different points in the development of a Better Regulation system.

It is noteworthy in this context that having a Better Regulation system in place does not necessarily lead to substantially less regulation. Among those seven Member States which have been broadly categorised on the basis of existing indicators as having relatively restrictive regulatory environments, as defined by the OECD, two present a set of measures in their NRPs spanning all or almost all elements of the Better Regulation agenda, and that most others take measures in at least two areas. This said, a number of the eight Member States listed among those with less restrictive regulatory environments are also found among those countries with measures in all or almost all elements of the Better Regulation agenda.

An increasing number of countries (18) are implementing, or plan to implement, their own Impact Assessment (IA) systems, mirroring what is already taking place in the Commission and in a small number of Member States. This should help ensure a higher quality of future regulation with regard to issues of importance for national and European competitiveness. Progress so far, however, has been somewhat slow and one should bear in mind that the benefits of implementing an IA system take a few years to materialise. Moreover, there are

³ The latter effect is sensitive to the country-specific initial conditions.

concerns that in a number of cases resource constraints may be a serious obstacle. Unless this issue of resource redeployment is overcome, new legislation might be deprived of the quality improvement that results from IAs that systematically assess economic, social and environmental impacts as part of an integrated process.

Establishing a fully fledged and integrated Better Regulation system should be the medium to long-term objective of all Member States. Clearly, urgent action is needed to lay the foundations for the system. Doing so in a sustained fashion will help provide better conditions for entrepreneurship, reductions in administrative burdens – which are particularly high in some sectors - and in barriers to market entry and contribute to increased competition, more innovations and ultimately higher economic growth. The general process of Better Regulation is still in its early stages and its ultimate success will be influenced by many factors that cannot easily be accounted for. The earnestness with which existing proposals will be implemented will also play an important role.

This analysis suggests that progress has already been made across the EU and that all Member States are taking action regarding Better Regulation, and the business environment more generally, but that real challenges remain. Naturally, for countries with less emphasis on Better Regulation policies up to now, both the urgency of and the potential benefits associated with pushing ahead more strongly with the Better Regulation agenda are greater than for countries that have already attained a more advanced stage. Those Member States in a less positive starting position should make greater efforts towards establishing fully fledged Better Regulation systems.

Financing of innovation receives the attention that it deserves, some policy gaps remain

The Report focuses first on particular finance-related problems of innovation and the appropriate policy tools to deal with them. Public support can come in various forms: direct measures such as grants and loans, indirect measures such as guarantees or fiscal incentives for R&D, and risk capital measures. The Report discusses good practice of government support, as supported by economic theory, and presents policy relevant conclusions. These conclusions are then complemented by reviewing the innovation financing measures that Member States put forward in the National Reform Programmes issued in October 2005.

Over the last years, an increasing number of countries have been using fiscal incentives for encouraging R&D and, in many countries, benefits provided by R&D tax provisions have been increased. The National Reform Programmes that Member States issued in October 2005 confirm this trend. They also reflect the growing importance for public authorities of having a robust venture capital industry, by reporting ongoing; stepped up or new actions in almost all Member States, with a special focus on early stage investments. A notable group of countries announce actions also for business angels. This said, little attention is paid, overall, to facilitating the cross-border mobility of venture capital. The same applies to debt financing of innovative projects, with only a small number of Member States announcing measures to this respect.

The broad variety of schemes and instruments, as well as the frequently stated intention to overhaul and restructure them indicate that a lot of experimentation is going on. There is clearly scope for mutual learning and exchange of best practice, which would be much easier if evaluations of existing measures were more frequent, more systematic and more comparable. Also, sometimes a wide variety of instruments exists within one country, making

necessary more systematic efforts to inform potential users but also to make existing instruments simpler and more accessible.

In conclusion, it would appear that more efforts should be directed towards facilitating the provision of cross-border venture capital and the debt financing of innovative projects. The provision of early stage risk capital is being addressed in many countries; however, this clearly remains an area where more should be done. Also, evaluation and simplification of existing schemes should be carried out more systematically and mutual policy learning should continue.

It must be clear, though, that if these efforts are necessary, they are certainly not sufficient for achieving the more general objective of transforming the European economy into a more dynamic and knowledge-based one. Apart from setting up comprehensive research, development and innovation policies, this will take also implementing those reforms that will tone up economic activity in general, particularly in the areas of business environment, competition, external trade, education and labour markets.

The lead market approach can contribute to innovation policies capable of anticipating global needs

The Report undertook a literature review of the lead market approach, a useful concept to better understand the factors behind the global success of innovations and new technologies, especially in the case of competing innovation designs.

While the lead markets approach is primarily relevant for firms, it can also help governments to design a more effective technology policy with respect to facilitating the potential global success of companies' innovation activities. For this purpose, some generic criteria for designing various parts of innovation policy (from funding programmes and public procurement to regulation and standard setting) can be applied: incorporation of global market needs and preferences of customers from abroad, transferring domestic market preferences abroad, putting emphasis on lowering costs of production, allowing competition among different innovation designs, and addressing global trends (though the latter is highly demanding since it is difficult to identify a particular change as being a global trend).

It is thus a critical point for any policy that attempts to support the emergence of a lead market to anticipate global markets, develop an innovation design that responds to these upcoming global needs and introduce cost advantages high enough to persuade other countries to follow, without interfering with competitive forces.

In order to make the lead markets concept operational at European level, the Commission has proposed in its recent Communication on Innovation⁴ to, firstly consult stakeholders, in particular Technology Platforms and the Europe INNOVA Innovation Panels, to identify possible areas where a combination of supply and demand side policies may help the emergence of innovation-friendly markets and, secondly, to launch pilot lead markets initiatives in the most promising areas in 2007. Based on this experience, the Commission will prepare a comprehensive lead markets strategy.

⁴ Commission Communication COM(2006) 502, 13.9.2006/ *Putting knowledge into practice: A broad-based innovation strategy for the EU.*

4. COMPETITIVENESS IN SECTORS

In addition to reviewing economic reform (energy liberalisation, regulatory environment) and policies to improve innovative performance, the Report examined the competitive position of two important, fast growing and high technology sectors, the industry producing Information and Communication Technology (ICT) goods and services and the pharmaceutical industry.

ICT industries need more R&D and policies that make change easier

Concerning ICT, the Report concludes that the EU has comparative advantages in differentiated goods of higher quality, commanding higher prices. The increased trade in intermediate goods, which is largely intra-firm trade, indicates that some of the imports are used as intermediate products for more complex finished goods of higher value.

Globalisation has multiplied the possibilities to fragment the production process and locate the production of components according to the comparative advantages of the different locations. As a consequence, chip design is made in Europe while mass production of chips takes place in South-East Asia; software development is carried out in European software labs while the coding of software is done in India. Proximity to the customers of specialised products such as customised software is yet another argument for location in the EU. The evidence suggests that knowledge-intensive production, product development and strategic R&D are still located in Europe while labour-intensive production of mature standardised goods has been located to Asia. However, increasing R&D investments in China and India may challenge this situation in the future.

This said, ICT producers in the new Member States have shown that it is still possible to be competitive in EU with low-cost and scale-intensive production such as insulated wire, radio and TV receivers and other consumer electronics, as well as computers. It is however unlikely that this kind of production is competitive in the longer run. It is therefore necessary to further strengthen the links between systems of innovation within Europe in order to reap the full potential of the relatively high skilled labour force in EU-10.

EU is specialised particularly in the production of communication services as well as in IT services and software production. For ICT manufacturing, EU comparative advantages are found in the production of scientific instruments, electronic products and telecommunications equipment of high quality. The answer to the challenge from low-cost producers lies in further climbing up the quality ladder and a fast flow of new innovative products satisfying the growing demand for advanced goods and services. Achieving this objective will be easier if the right sector-specific and more general microeconomic policies are in place.

In comparison with other sectors, the EU ICT sector is R&D intensive. However, given the lags already existing vis-à-vis its main competitors, further raising its R&D investments will be crucial for its future competitiveness. This is not so much a necessity for the larger EU enterprises of the sector as for smaller ones and start ups. This points to the existence of a more systemic weakness in generating - and financing - research in small innovative firms which cannot be addressed by sector specific measures alone; it rather necessitates the horizontal policy responses reviewed in relation with the financing of innovation. Also, this is clearly a sector where the lead markets concept is relevant when considering specific policies.

In sum, ICT markets can move very fast and innovation is a primary factor for longer term competitiveness. Besides the sector specific policy conditions that may facilitate the further

development of the sector, the more general business environment and, especially, market regulation and the innovation system are of primary importance in making adaptation to change easier.

Pharmaceuticals: systemic weaknesses restrain a growing industry

In terms of production and employment Europe's pharmaceutical sector is growing, as well as its share in global exports. This good performance is partially due to a delocalisation of US production in Europe but also to an increase of its cost competitiveness.

Nevertheless, the overall picture gives rise to concern. The European pharmaceutical industry has a considerable gap vis-à-vis the US in labour productivity, much larger than in overall manufacturing. Productivity growth in the US was mostly the outcome of capital deepening, while the most important component in Europe was total factor productivity (TFP) growth. Capital deepening in Europe increased at a modest rate.

Since 2000, the US has consolidated its central role as a locus of innovation in pharmaceuticals. US firms hold the majority of biopharmaceutical patents, and this dominance continues to expand. Also, US firms play a pivotal role in the global division of innovative labour in pharmaceuticals, as shown by their shares of co-invented patents at international level. These trends are confirmed by data on patent citations. The internal structure of the US national innovation system is a powerful source of competitive advantage and industrial leadership. In particular, the biotech sector plays a vital role in integrating explorations of new research opportunities with clinical and market development.

The US market for pharmaceuticals is both more concentrated and more volatile than markets in Europe. In other words, the higher concentration of the US market does not mean that it is less competitive. On the contrary, the US market is highly contestable; product turnover is much more frequent than in the EU and Japan; and competition from generic producers is substantial. US market behaviour is consistent with that of a market characterized by Schumpeterian competition, where innovators can gain temporary quasi-monopoly profits, which in turn spur innovation efforts by competitors that quickly leads to more innovative products and a high turnover of market shares. Dynamic competition is less evident in the EU as a whole, and especially in certain continental European countries.

Europe is lagging behind the US in its ability to generate, organise, and sustain innovation processes and productivity growth in pharmaceuticals. Moreover, a disproportionate share of pharmaceutical R&D is performed in the US, with negative consequences in terms of both high value-added employment and complementary investments in clinical research.

Cost policies on behalf of European Social Security institutions can explain to a certain extent the different dynamics characterising the EU pharmaceutical industry vis-à-vis the US. However, these cannot be fully explained by sector-specific factors. They are also the consequence of Europe's relative lack of dynamism in reforming its labour and capital markets, education systems, public spending, and regimes of market regulation. This is, for example, illustrated by the relative lack of dynamism of young technology-dedicated firms in generating and developing R&D projects.

Given the shortcomings in European competitiveness attributed at least partially to the distortions created by existing pricing and reimbursement policies, the Commission has taken the initiative to address some of the pressing issues by creating the Pharmaceutical Forum.

Established in June 2005, the Forum brings together for the first time senior decision makers in Member States, industry and other stakeholders. Based on previous work, the G10 Medicines process, it will take forward the three topics “Information to Patients, Relative Effectiveness of Medicines and Pricing/Reimbursement”.

In particular the two latter issues have been the source of market distortions in the Single Market for pharmaceuticals in the EU since different national pricing/reimbursement decisions and the diverging requirements to measure relative effectiveness have had undesired consequences on other Members States with different systems and have often caused unforeseen ramifications for the EU market as a whole.

The objective of the Forum is to find a way forward which will strike a balance between the public health objective of patients’ access to new medicines at affordable costs and the need to create a predictable environment for business with economic rewards for innovators. Finding the right balance and creating an environment conducive to innovation will foster the competitiveness of the industry. Based on the deliberations in this framework, concrete actions will have to follow at EU and particularly at Member States’ level in order to regenerate Europe as a world centre of pharmaceutical innovation.

5. SYNTHESIS

Improving the competitiveness of European economies is a long term and multifaceted endeavour. The European Competitiveness Report 2006 reviewed a number of reforms targeting framework conditions (access to innovation finance, better regulation) and a particularly important input market, energy. It also identified the contribution that the concept of lead markets could have in designing more anticipatory innovation policies. In addition, it discussed recent trends and challenges regarding the competitiveness of two growing, high technology sectors, the ICT and the pharmaceutical industries.

In line with its mission in support of the microeconomic pillar of the Lisbon strategy, the Report documented areas where additional efforts may be necessary, for example, in the case of energy market reforms, as concerns consumer benefits from efficiency gains and efficient regulators, investment in long term fundamental research and infrastructure, reliability and environmental effects. In the area of business environment, the Report suggests that all Member States are taking some action regarding Better Regulation, and the business environment more generally, but that those Member States in a less positive starting position should make greater efforts towards establishing fully fledged Better Regulation systems.

In relation with Innovation policy, the Report pointed to the need for supporting early stage venture capital and making cross-border venture capital operations easier and highlighted the relative lack of attention to facilitating the financing of innovation through loans. In addition, it identified the factors that would help design a lead market oriented innovation policy, i.e. incorporation of global market needs and preferences of customers from abroad, transferring domestic market preferences abroad, putting emphasis on lowering costs of production, allowing competition among different innovation designs, and addressing global trends.

The ICT producing industries and the pharmaceutical industry have little in common, other than being both high technology sectors. Trends in the first are driven mainly by technology while in pharmaceuticals health cost policies play an important role. Yet, some weaknesses, as a marked deficit in R&D intensity and the relative lack of young innovative firms are the same. It is also clear that beyond sector-specific measures - which are necessary and are pursued in specific fora - their competitiveness would improve substantially by the more horizontal reforms prioritised in the Lisbon agenda, such as those regarding innovation finance, the overall business environment, research, education and the functioning of the labour markets.