Memo

To	Department for Business, Innovation and Skills
From	Tata Steel UK Ltd
Reference	Balance of Competences
Date	07/08/2013
CC	, Department for Business Innovation and Skills

Call for evidence – questions and answers from Tata Steel UK

Before answering any questions, may we compliment the authors of the consultation document on the well-drafted and comprehensive overview of the UK and EU developments in the field of research and development. It is very helpful in understanding the context of this consultation. Can we also express our gratitude in being granted an extension to the deadline.

Tata Steel context

1. The European operations of Tata Steel comprise Europe's second largest steel producer. With the main steelmaking operations in the UK and Netherlands, we supply steel and related services to the construction, automotive, packaging, lifting & excavating, energy & power, aerospace and other demanding markets worldwide.

2. In Europe approximately half of Tata Steel's assets are in the UK with the other half located in mainland Europe. In revenue terms approximately 50% of the steel Tata Steel produces in the UK is sold into continental Europe. Tata Steel in Europe is managed on a European basis with sales and product development activities focused around customer sectors rather than national geographies.

3. Tata Steel's UK operations directly employ around 18,500 people and indirectly support more than 100,000 jobs nationally. In many cases it is the largest local private sector employer and the development of its activities have been, and continue to be, integral to surrounding local communities.

4. The combined Tata Steel group is one of the world's largest steel producers, with an aggregate crude steel capacity of more than 28 million tonnes and approximately 80,000 employees across four continents.

5. Tata Steel Group has a large global R&D&I effort consisting of:

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- the R&D department (staff in Europe 550 FTE) for developing new products and processes with facilities in 5 locations of which 3 are in the UK.
- Centres of Expertise (staff 150 fte's) within the European manufacturing sites for implementing R&D results.
- Technology Groups for supporting the Indian manufacturing units.

6. Besides our own R&D&I workforce, Tata Steel Group sponsors 15 university chairs and lecturers, over 100 PhD students in Europe at any one time and many EngDoc students in the UK to ensure inflow of new technologies, ideas and people.

7. R&D partakes in 11 collective R&D programmes of top-class research organisations across the globe. From the European Coal and Steel Community (ECSC) period we have learned that collaboration is essential. Around 35 collaborative projects are running with European Commission funding from Research Fund for Coal and Steel (RFCS) with partners in steel industry, research organisations and academia.

8. Tata Steel is part of the Tata group which comprises over 100 operating companies in seven business sectors: communications and information technology, engineering, materials, services, energy, consumer products and chemicals. The group has operations in more than 80 countries across six continents, and its companies export products and services to 85 countries.

Impact on the national interest

Where has EU action had a positive impact for the UK on research, technological development, innovation or space? What evidence is there for this? Has EU action encouraged national action in any areas?

9. The EU has been very active in promoting research and development, through funding programmes such as FP7 and going forward into Horizon 2020. This is supported with the setting up of bodies such as the European Institute for Innovation & Technology in 2010 and the European Research Council. Furthermore, the two Public Private Partnerships Factories of the Future and Energy Efficient Buildings, established as part of the Economic Recovery Plan as well as the new PPP Sustainable Process Industry through Resource and Energy Efficiency (SPIRE) along with their Ad Hoc Industrial Advisory Groups, all provide the opportunity for direct contact between the European Commission (EC) and industry on topics of mutual interest. In the case of Tata Steel in Europe, we have continued to participate in these organisations and processes. These programmes have the additional advantage of drawing together large and small businesses

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across Europe in order to promote joint working and to share and learn. Tata Steel is especially interested in the recent SPIRE programme which will actively support our process-based business and will give opportunities for the last phase of R&D&I (high Technology Readiness Level, TRL, see Annex One).

10. Especially important for Tata steel is the Research Fund for Coal and Steel (RFCS), established in 2003 under the Treaty of Nice and from the remaining funds from the European Coal and Steel Community (ECSC). Innovation is a key area of the RFCS programme and our experience has shown that this effectively brings together members of the coal and steel industry sectors both large and small, and from a UK perspective, has allowed research programmes to integrate with academic research and support the development of scientific competences. RFCS has done a monitoring and assessment exercise which reports the clear benefits of an industrial programme. RFCS could therefore be a mirror for other schemes at EU and national level.

Where has EU action had a negative impact for the UK in these fields? What evidence is there for this? Has EU action prevented potentially useful national action in any areas?

11. The EU actions in the field of research, development and innovation (RDI) continue to focus on scientific excellence. This is generally interpreted as breakthrough and frontier research at low levels of TRL. Together with a focus on grand societal challenges, the EU actions have overlooked R&D requirements for existing industry. The decreasing levels of industrial participation in subsequent FP programmes provide evidence of a missing connection with innovation. The EU has recognised this and trying to do better with more focus on innovation and Leadership in Enabling and Industrial Technologies in HORIZON 2020.

12. To its credit the UK government has filled in the gap by creating CATAPULT centres that do more to address the needs of industry on higher TRL levels. But also for the lower TRLs through Engineering and Physical Sciences Research Council (EPSRC), ICASE vouchers and Doctoral Training Centres that require industry participation. In this way the UK government ensures that there is a better connection to university research and industry needs.

13. In the UK, in order to bridge the so-called 'valley of death' between developing technology and industrial application, the High Value Manufacturing Catapults have been set up, with Tata Steel actively working with the Centre for Process Innovation (Teesside), Advance Manufacturing Research Centre and Nuclear Advance Manufacturing Research Centre

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(Sheffield), Warwick Manufacturing Group and the Manufacturing Technology Centre (Midlands) and the Advanced Forming Research Centre (Glasgow). It is clear that developing the concept of the Offshore Renewable Energy Catapult will also have great interest for us. The EU would benefit from greater alignment of 'catapults' across Members States.

14. From a UK perspective, there are critical areas of developing competence that are lacking and are not supported through EU action. In particular, our concern is the loss over many years of knowledge in the extractive materials industry and raw materials processing. This presents a particular problem for long term UK competitiveness where vital materials and the knowledge of their extraction and use are increasingly present only in overseas locations such as China or, more worryingly, in politically unstable regions. This is exacerbated by funding mechanisms/priorities and academic research interests in more 'modern' and 'exotic' material solutions.

How, and where, has UK engagement with partner countries or international bodies, both within and outside the EU, been helped or hindered by EU involvement?

15. In our experience the UK engagement is neither helped nor hindered by EU involvement. This is probably caused by the special case of shared competence.

What benefits or difficulties has the objective of a European research area (ERA) delivered for the UK?

16. The objective of the ERA is to create an EU wide RDI zone in which researchers can freely move. Although the FP programmes encouraged collaboration in projects, it does not help enough with the mobility of researchers, especially industrial researchers. The Marie Curie programme is helping in this way but in our view it is too focussed on academic researchers rather than the broader pool of all EU based researchers. In our view EU research programmes should also help our employees to move around for sharing and learning purposes that benefit the EU and aid personal development. It would be good to see new funding options for secondments and placements. This could be done on national UK scale.

How has the EU sought to coordinate the policy instruments at its disposal across different policy areas to create an enabling environment for researchers and innovators? How successful has this been?

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17. The EU has sought to create an enabling environment for researchers through its use of NER300 funds to promote RDI in relation to CO2 emissions reduction. Unfortunately, the NER300 programme has been far too demanding, too focussed on CCS and too dependent on the market price of carbon credits to become really successful at driving and incentivising RDI. Funds from the auctioning of carbon credits go directly to the member states whereas it would be a far more effective use of these revenues if they could be used to stimulate RDI linked to general environmental improvements. To illustrate the point, no funds are provided through REACH to stimulate research into the substitution of hazardous substances. Policy in this sense needs to be much more joined up, or to put it another way, there needs to be a rebalancing from policy 'stick' to policy 'carrot'.

Future opportunities and challenges

What could the EU most helpfully do to promote scientific and technological progress and innovation (including in the space sector)?

- *How could the EU use its existing competence differently to deliver more in your area?*
- *How might a greater or lesser degree of EU competence deliver more in your area?*
- *How could improvements to existing EU activities make them more effective and efficient?*

18. The EU should make better use of the expertise and competences within the steel industry. The EU relies heavily on academics and consultants for its policies and programmes. The reasoning behind this is that there is a conflict of interest in using experts from industry. However, by using only academics and consultants the EU will get a one sided view and a further decline in industry participation in regular programmes may be expected.

19. Although the EU is in favour of PPPs with high industry participation, there are streams that push in another direction, for example, that of risk financing which is not helpful in innovation.

20. Seeing the positive development of increased participation of industry in PPPs, the concept of industrial consultation groups should be used more frequently. Tata Steel experts are available and able to help with developing policies. We have broad experience with RFCS and PPPs that can also be applied to other areas as well.

Where might future EU level action be detrimental to your work in this area?

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21. Well intentioned, although sometimes poorly designed, EU climate and environmental policies can be detrimental to our work by not recognising the technological limitations of the steel industry when formulating EU policy/targets/regulations. This is particularly the case in relation to emissions policy.

22. The cost of such policies (e.g. buying carbon credits, EUAs) can have a detrimental effect on the competitiveness of globally exposed sectors, such as steel. Higher compliance costs and the resulting loss of competiveness can lead to reduced revenues available for R+D spend to the detriment of the UK and EU steel industry.

23. We are seeking a global level playing field on which to compete on. However, currently even within the EU there is no level playing field. For example, the costs of research, employment, energy and legislative rigour among other things, are different amongst member states which can create major distortions. One example being the UK's unilateral Carbon Floor Price which artificially boosts the cost of purchasing electricity in the UK vs other members states.

Where might action at national rather than EU level be more appropriate / effective?

24. If the current focus of the EU remains on lower TRLs, then it is crucial that the UK government continues to focus on the higher TRLs.

25. There are still many things that can be improved but Tata Steel recognises that the UK government is nowadays more disposed towards the economic and financial benefit of research and innovation than it has been for a very long time.

How could EU and national policies and funding streams interact better?

26. The EU has been striving for a long time towards joint programming. But joint programming is conflicting with subsidiarity if it becomes mandatory. EUREKA and ERANETs have the possibility for member states to participate in programmes. This model is one that should be exploited much more. In examples of such joint programming one should consider the principle of "lead agency" to avoid having the assessment and the approval multiplied by the number of countries.

27. The whole funding process is overly bureaucratic. Clearly, we want to prevent fraud but the current process is built on distrust.

What impact would any future enlargement of the EU have on this area of competence?

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28. Any future enlargement of the EU will not strengthen the competences in the field of RDI. The new member states usually have an RDI infrastructure which is underdeveloped against the "old" member states. This may introduce unproductive debates like those relating to supplementing the salaries of researchers in new members via EU RDI programmes. Regional development should not go at the costs of RDI programmes but only via structural funds.

Are there any other points you wish to make which are not captured above?

29. The EU policies for RDI are too focussed on 'newness' which leads to areas such as nanotechnology and biotechnology getting a prominent place in the RDI area. In FP7 it was the intention to give more attention to the transformation of traditional (manufacturing) industry, but this has not been achieved. The current crisis has shown that countries with a more balanced economy are better equipped to withstand economic shocks vs those that have an imbalance or dependency on particular sectors. A service economy cannot exist without (manufacturing) industry delivering new revenues to the economy. Therefore we support the UK government's position to embrace the (manufacturing) industry and hope that the RDI potential within it is cultivated in order to bring the UK new prosperity.

30. Another very important point to consider is how UK and EU policies can be aligned with global competition and growth. For example, as part of Tata Steel Group (and the even wider Tata Group), we have the option to undertake global research. EU RDI policies are only attempting to attract greater global fit in limited ways by special arrangements for the special INCO countries or specialised joint calls with, for instance, the USA. In the UK, more structural schemes like the UK-India Education and Research Agreement, the joint UK-China Research programmes and others are in place, led by UKTI/BIS.

31. The EU needs to be equipped to win in the global race and to attract funds and investment into EU based RDI. The policy framework around that needs to reflect the global reality of R+D investment choices available to large international industries

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Annex One

Technology Readiness Levels (TRLs) as used by the EC

TRL 1 – basic principles observed

TRL 2 – technology concept formulated

TRL 3 – experimental proof of concept

TRL 4 – technology validated in lab

TRL 5 – technology validated in relevant environment (industrial environment in the case of KETs)

TRL 6 – technology demonstrated in relevant environment (industrial environment in the case of KETs)

TRL 7 – system prototype demonstration in operational environment

TRL 8 – system complete and qualified

TRL 9 – Actual system proven in operational environment (competitive manufacturing in the case of KETs; or in space)

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