

Czech Republic in the EU Framework Programmes for R&D&I: success or failure?

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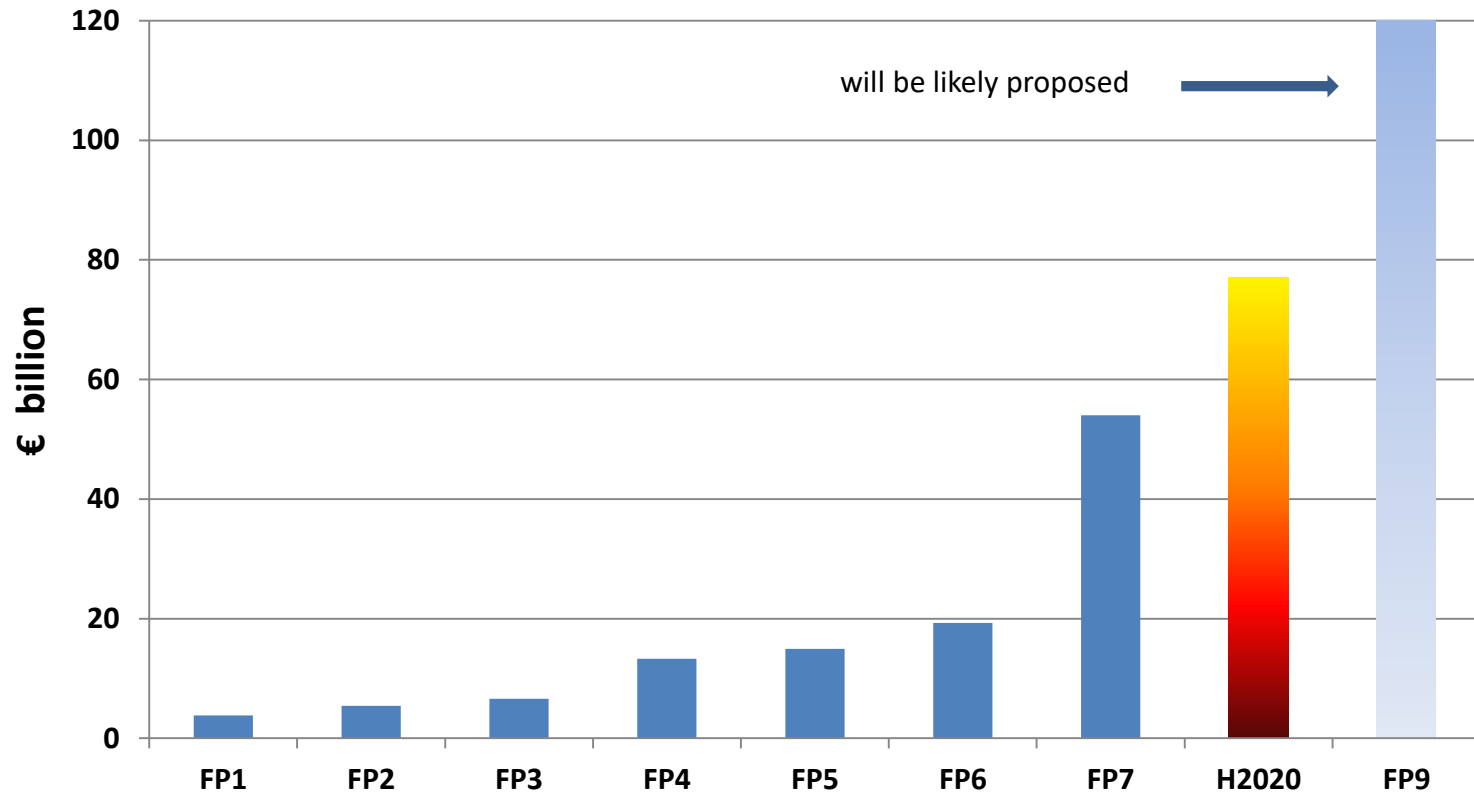
Technology Centre AS CR

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HORIZON 2020, 2014 – 2020, € 77 bil.

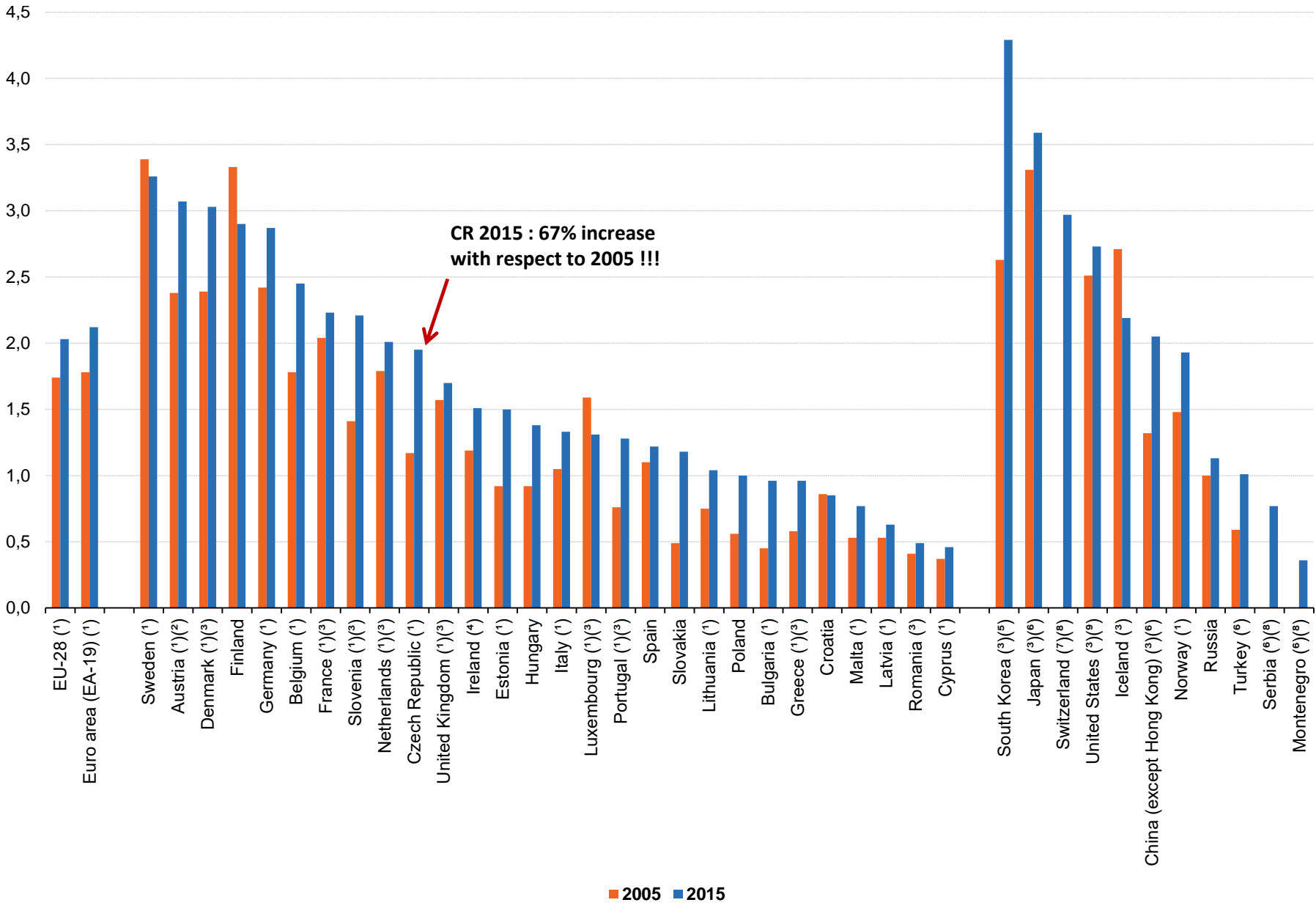
| Excellent Science | Industrial Leadership | Societal challenges | |
|--|--|--|--|
| <p>European Research Council (curiosity driven frontier research)</p> | <p>Leadership in Enabling and Industrial Technologies</p> <ul style="list-style-type: none"> Information and communication technologies | <ul style="list-style-type: none"> Health, demographic change and wellbeing | <p>Joint research centre</p> |
| <p>Future and emerging technologies</p> | <ul style="list-style-type: none"> Nanotechnologies Advanced materials Biotechnology Advanced manufacturing Space | <ul style="list-style-type: none"> Food security, sustainable agriculture, marine, maritime research, bio-economy | <p>Widening participation (1% of H2020 budget)</p> |
| <p>Marie Curie-Sklodovska actions</p> | <p>Access to risk finance</p> | <ul style="list-style-type: none"> Secure, clean and efficient energy Smart, green and integrated transport | <p>Science with and for society</p> |
| <p>Research infrastructures</p> | <p>Innovation in SME</p> | <ul style="list-style-type: none"> Climate actions, resource efficiency and raw materials Europe in changing world: inclusive, innovative societies Secure societies – protecting freedom and security of Europe and its citizens | <p>European Institute of Innovation and Technology</p> |
| | | | <p>Joint programming P2P Technology</p> |
| | | | <p>Joint Technology Initiatives (industry driven research)</p> |
| 36,8% | 22,3% | 36% | 4,9% |

Evolution of budgets of Framework Programmes 1984 – 2020 (2027)



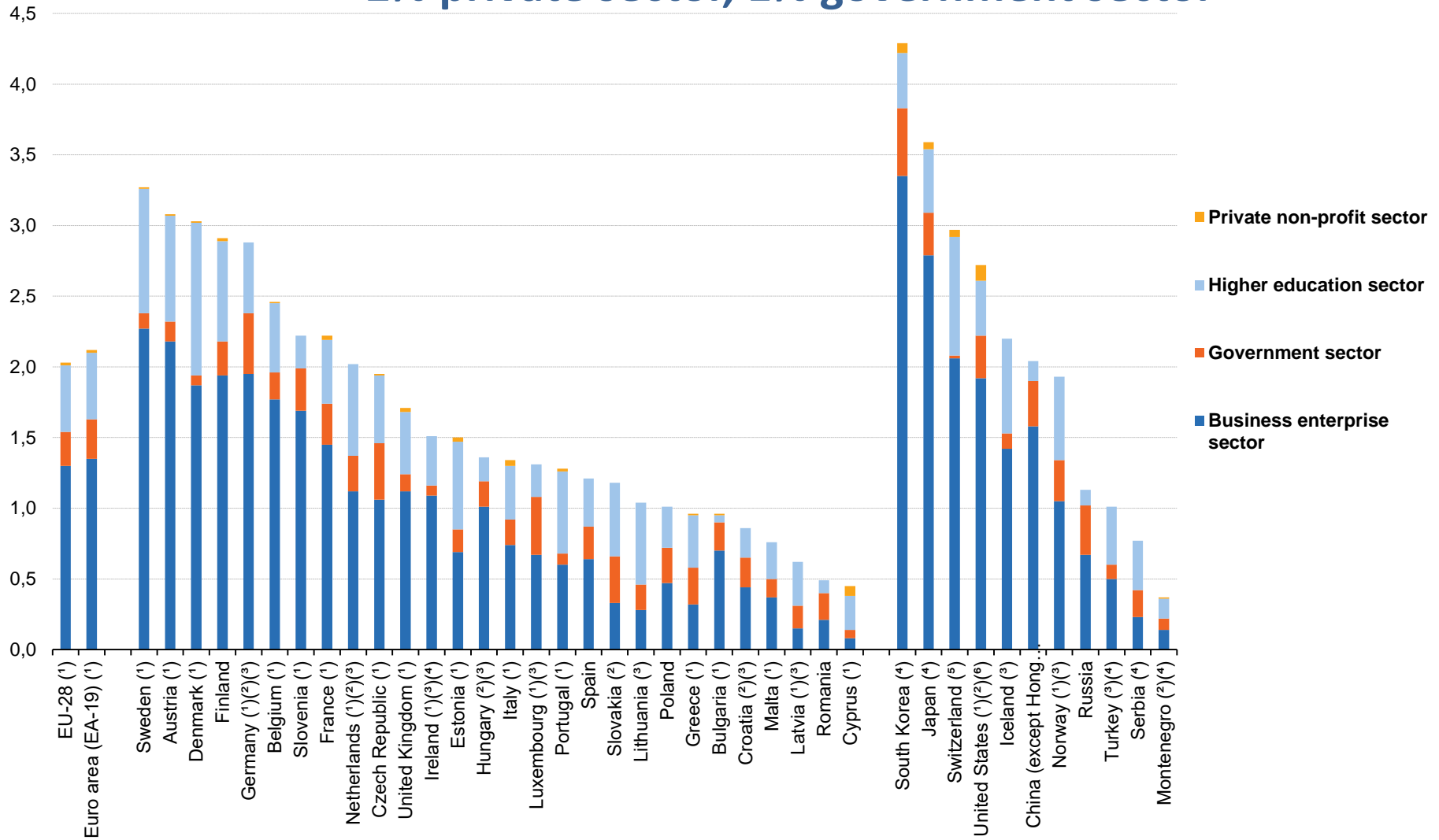
1984

1989 New member states

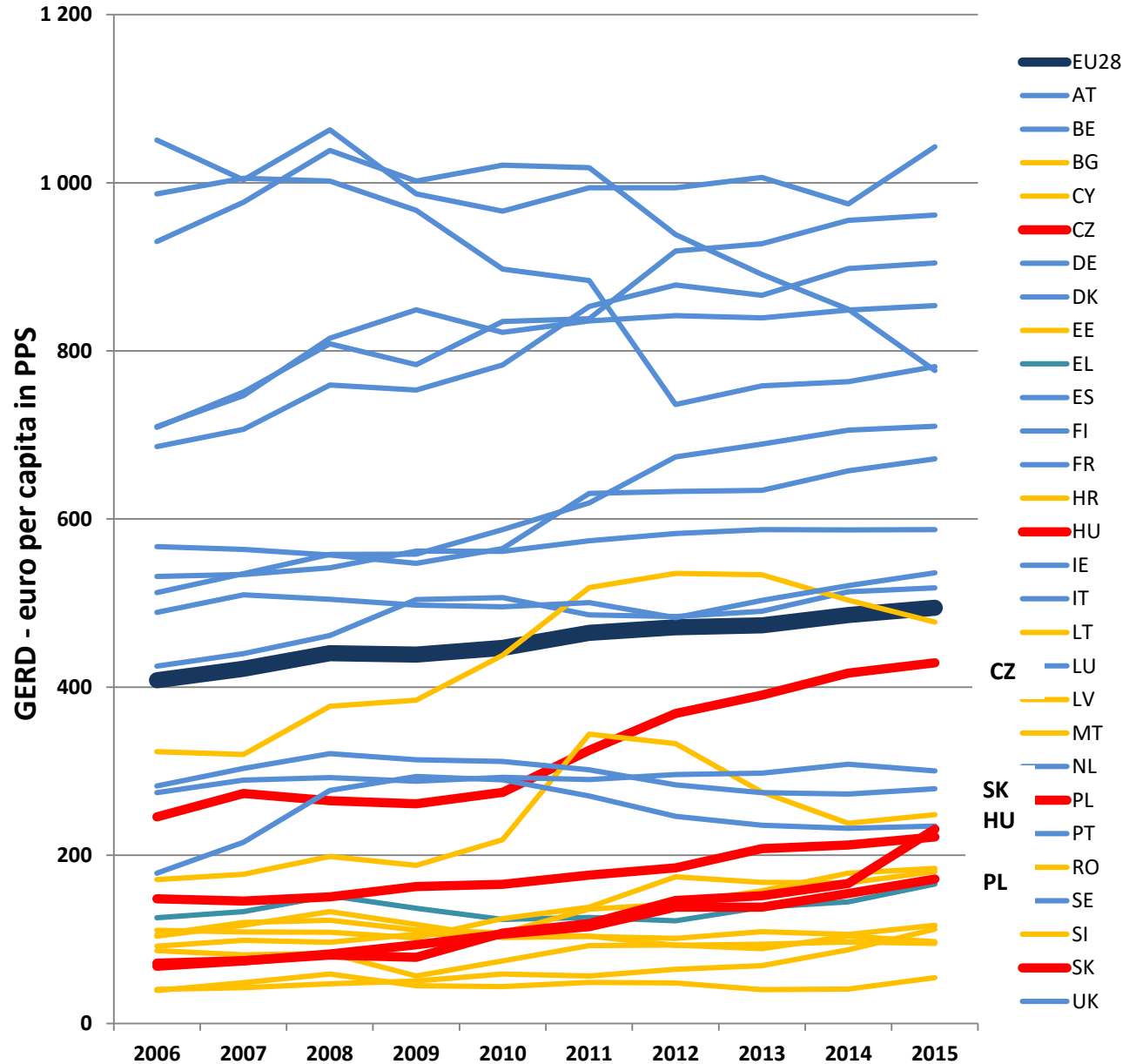


Strategy EUROPA 2020: by 2020 R&D expenditure =3% GDP

2% private sector, 1% government sector



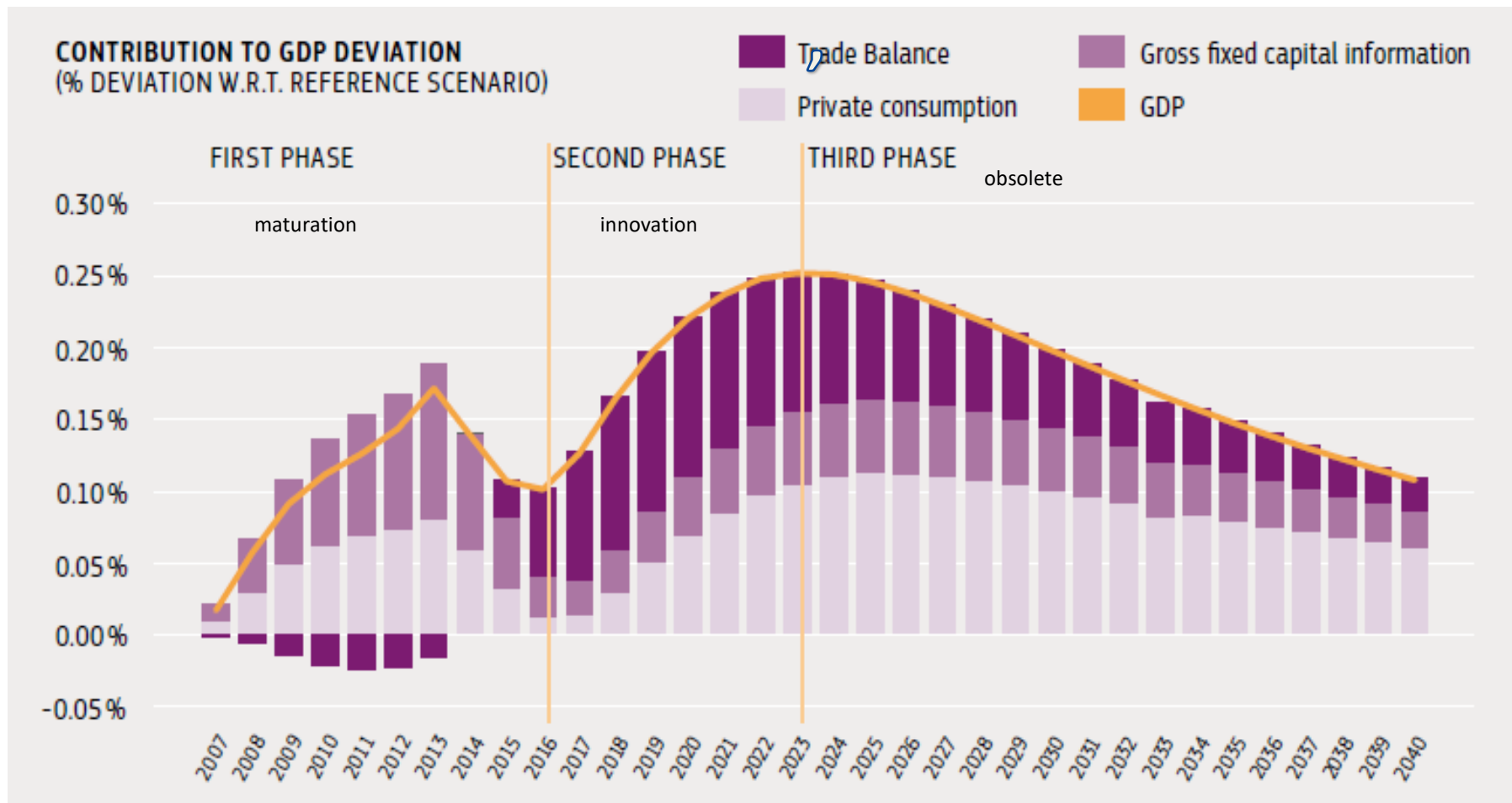
Trend of GERDs per capita (PPS) in the period 2006 - 2015



V4 GERD
2014 – 2015
represented some

5,7%

of the EU28 GERD



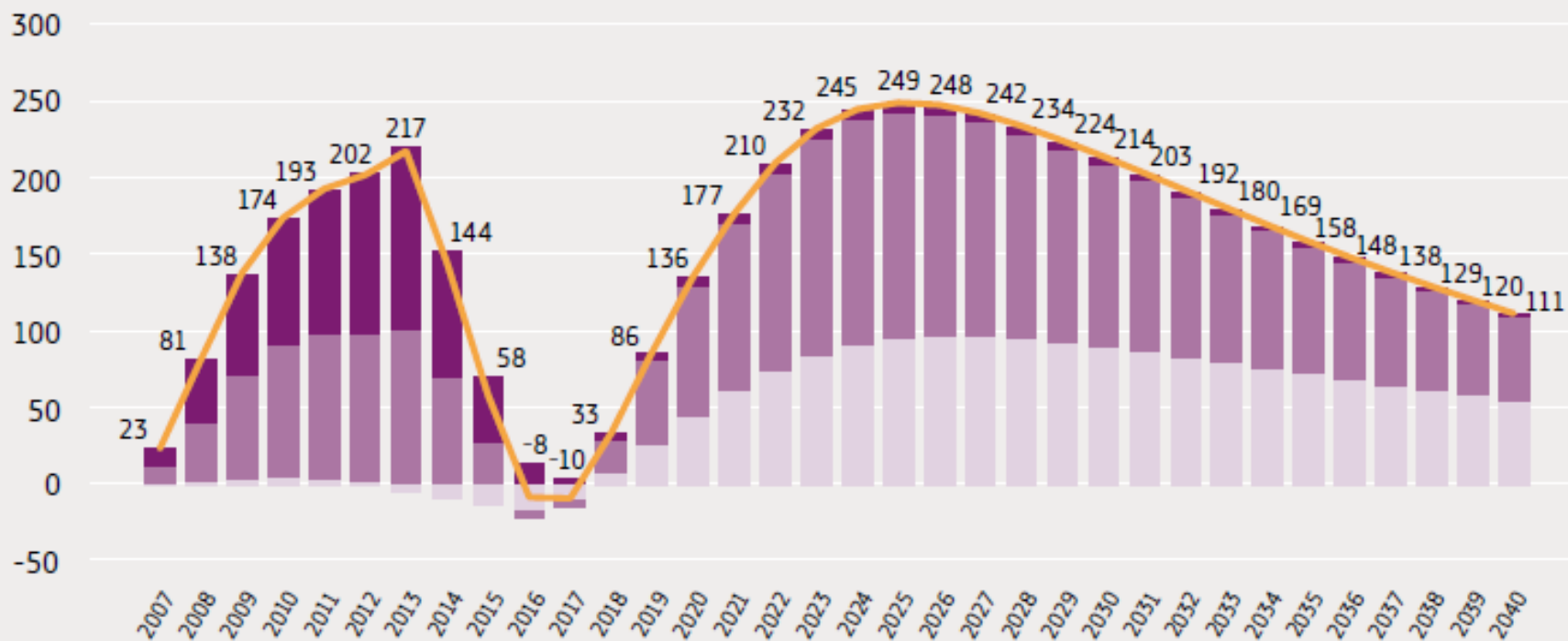
NEMESIS (New Economic Model of Evaluation by Sectoral Interdependency and Supply)

GDP gain in the period 2007-2023: € 380 billion, 1€ invested into FP7 increases GDP by 9€

working document 2017, **estimate for FP7**

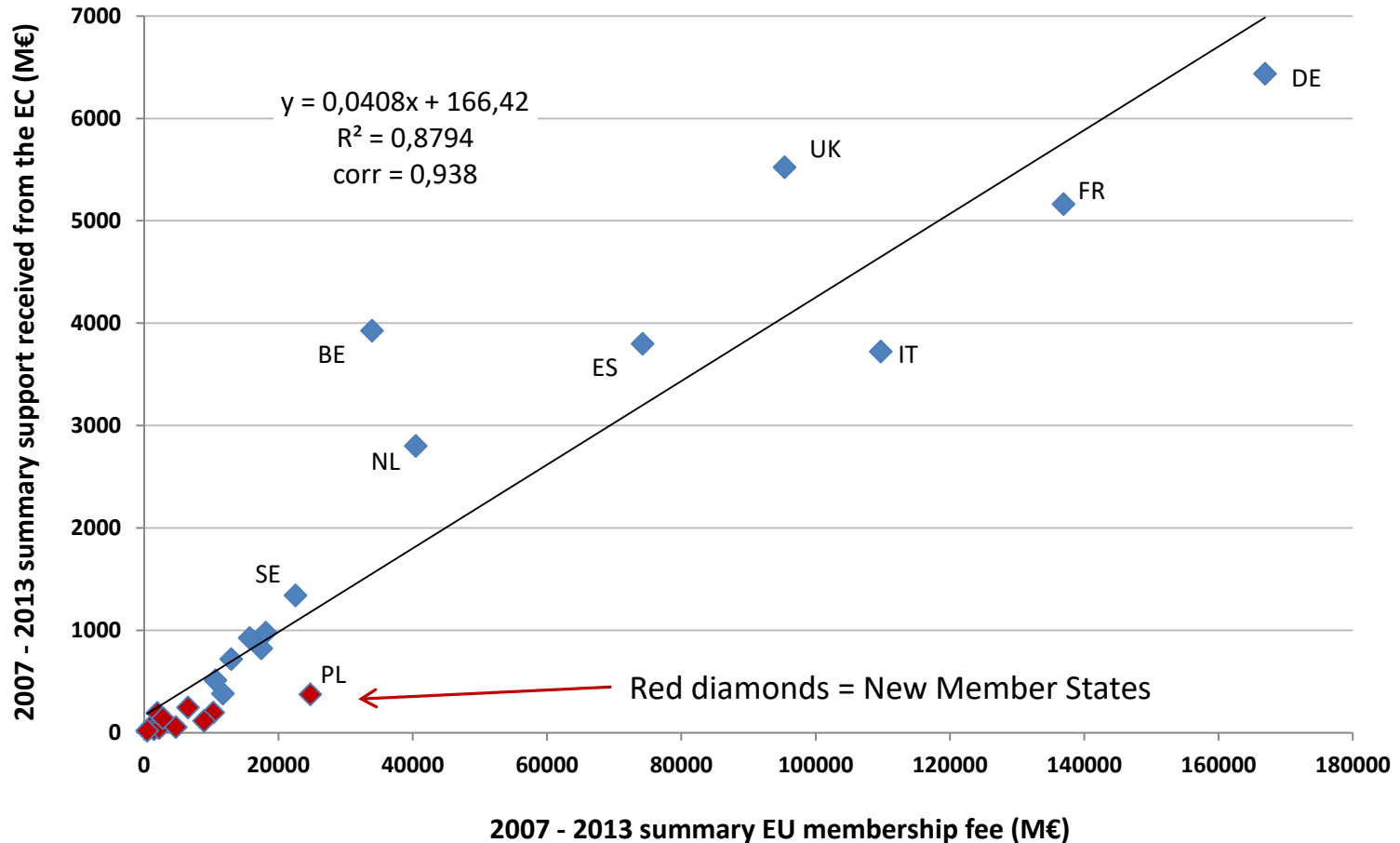
EMPLOYMENT (DEVIATION W.R.T. REFERENCE SCENARIO, THOUSAND PERSONS)

Employment in R&D activities
 Low-skilled workers
 High-skilled workers
 Total employment



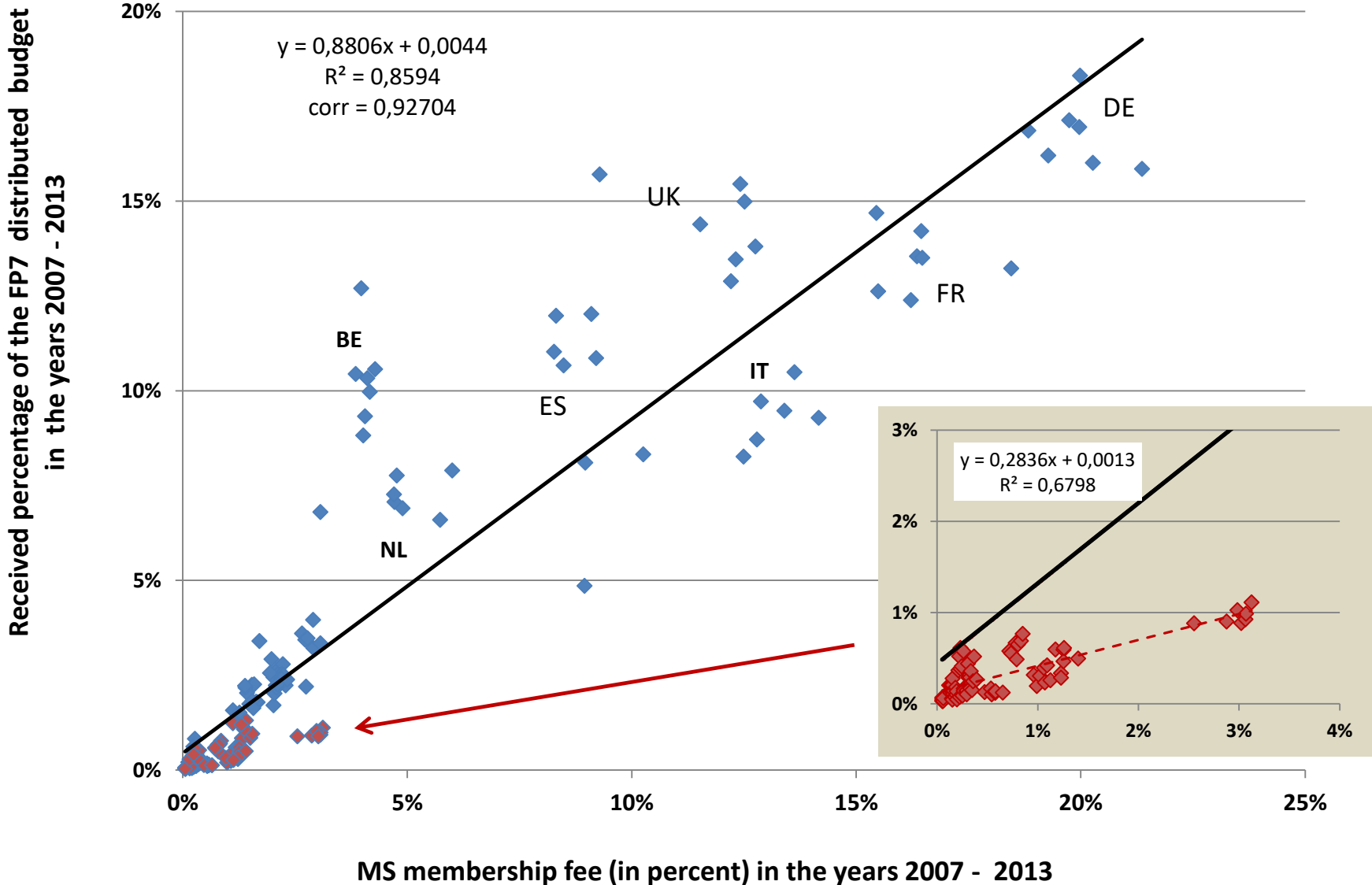
The FP7 Member State support is proportional to the Member State contribution to the EU budget, thus „FAIR DISTRIBUTION“ of the FP7 budget

Data source http://ec.europa.eu/budget/figures/2007-2013/index_en.cfm

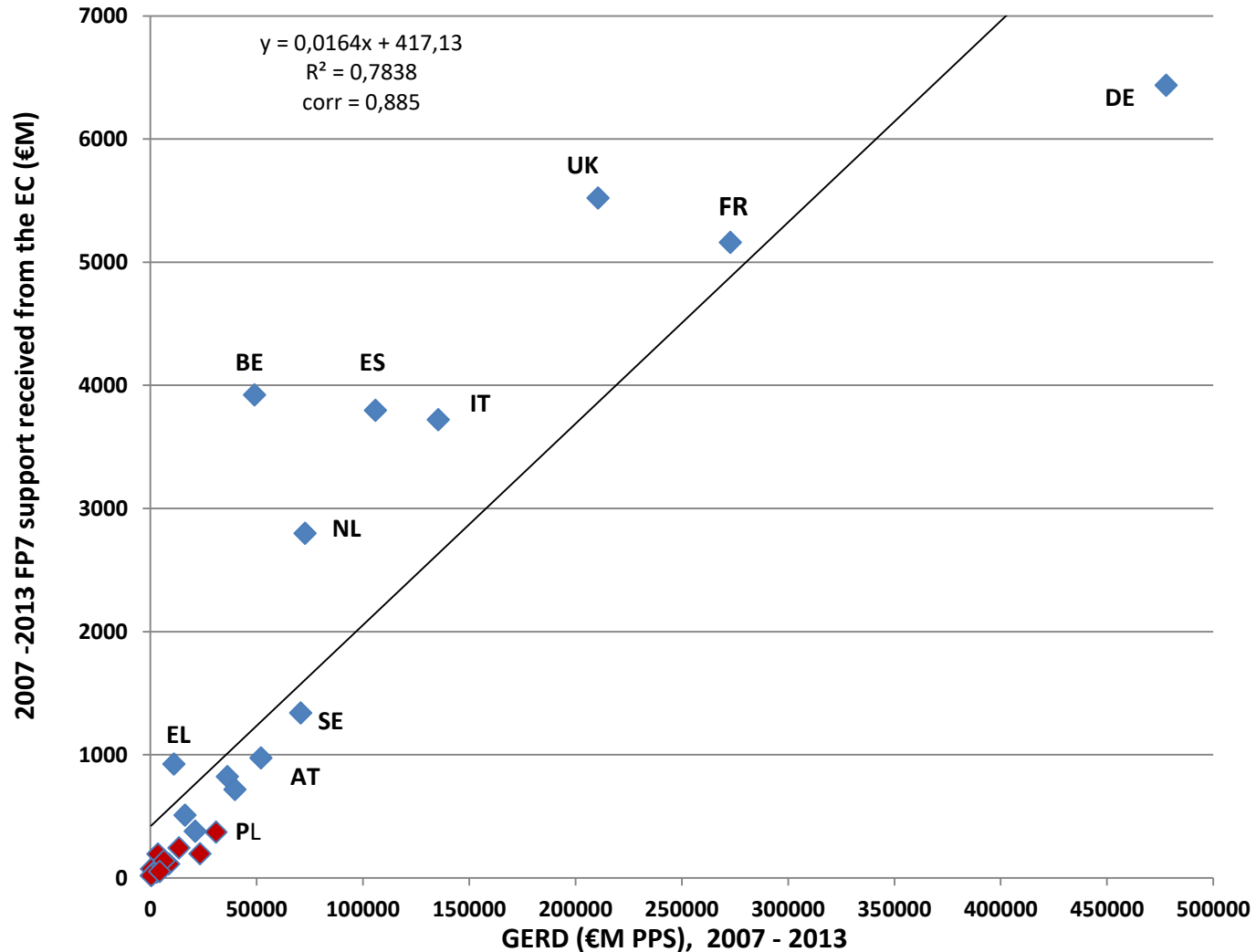




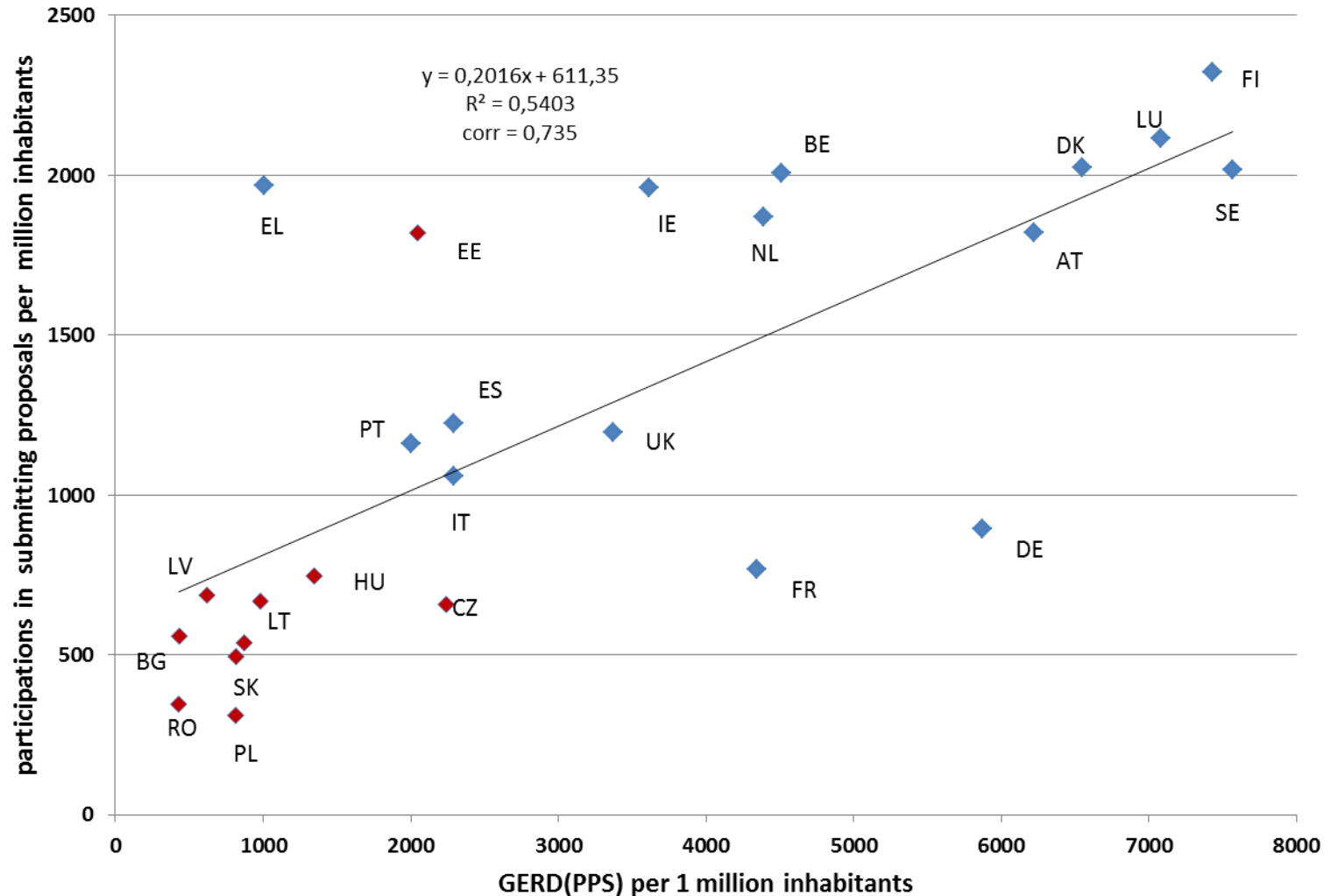
The portion of the FP7 distributed budget is proportional to the portion of the member state contribution to the EU budget, i.e. **FAIR DISTRIBUTION OF THE FP7 SUPPORT**



The FP7 Member State support is proportional to the Member State GERD, thus Efficient distribution of the FP7 budget

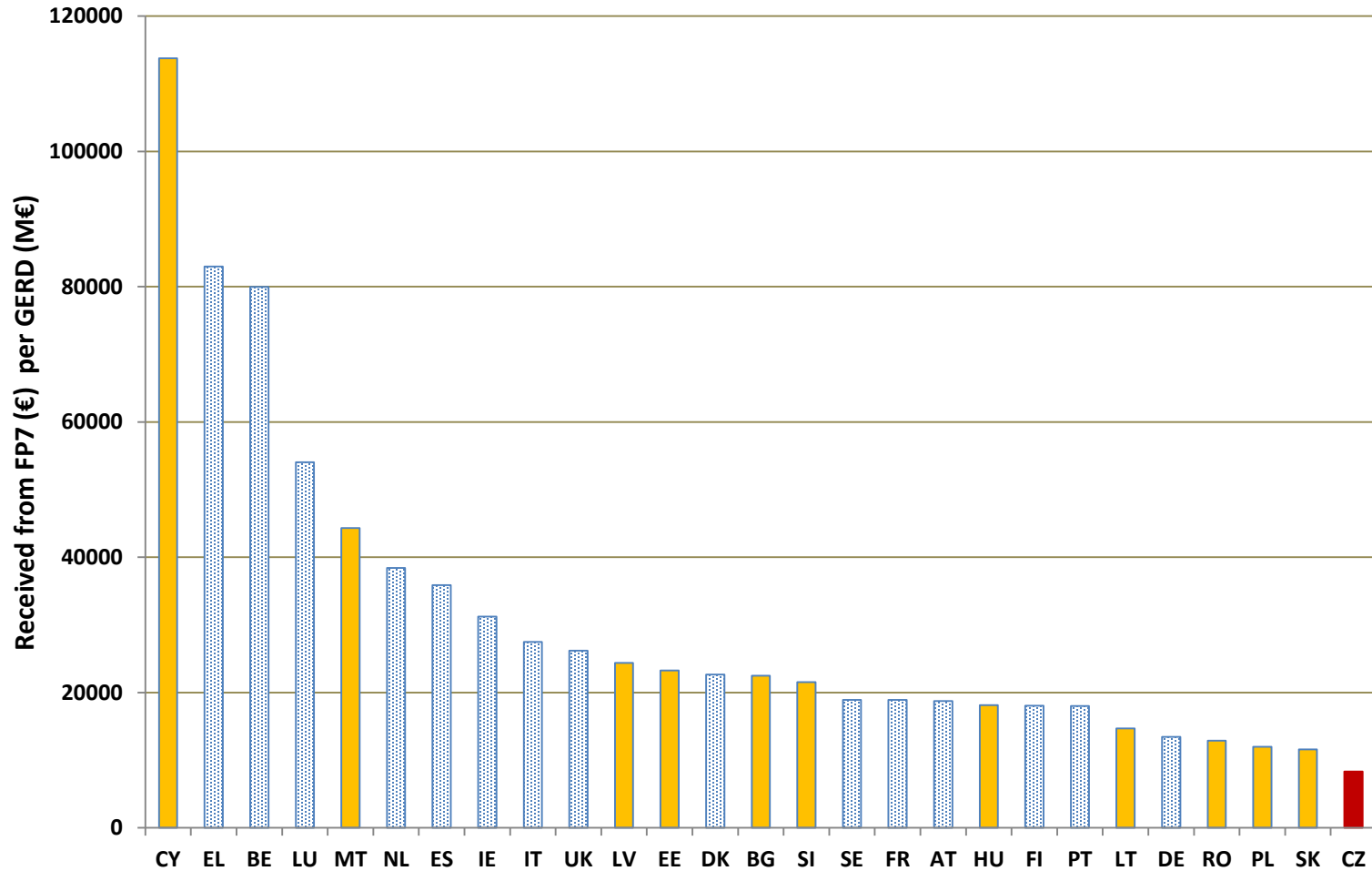


Low participation of New Member States in submitting project proposals corresponds to the low level of their GERDs

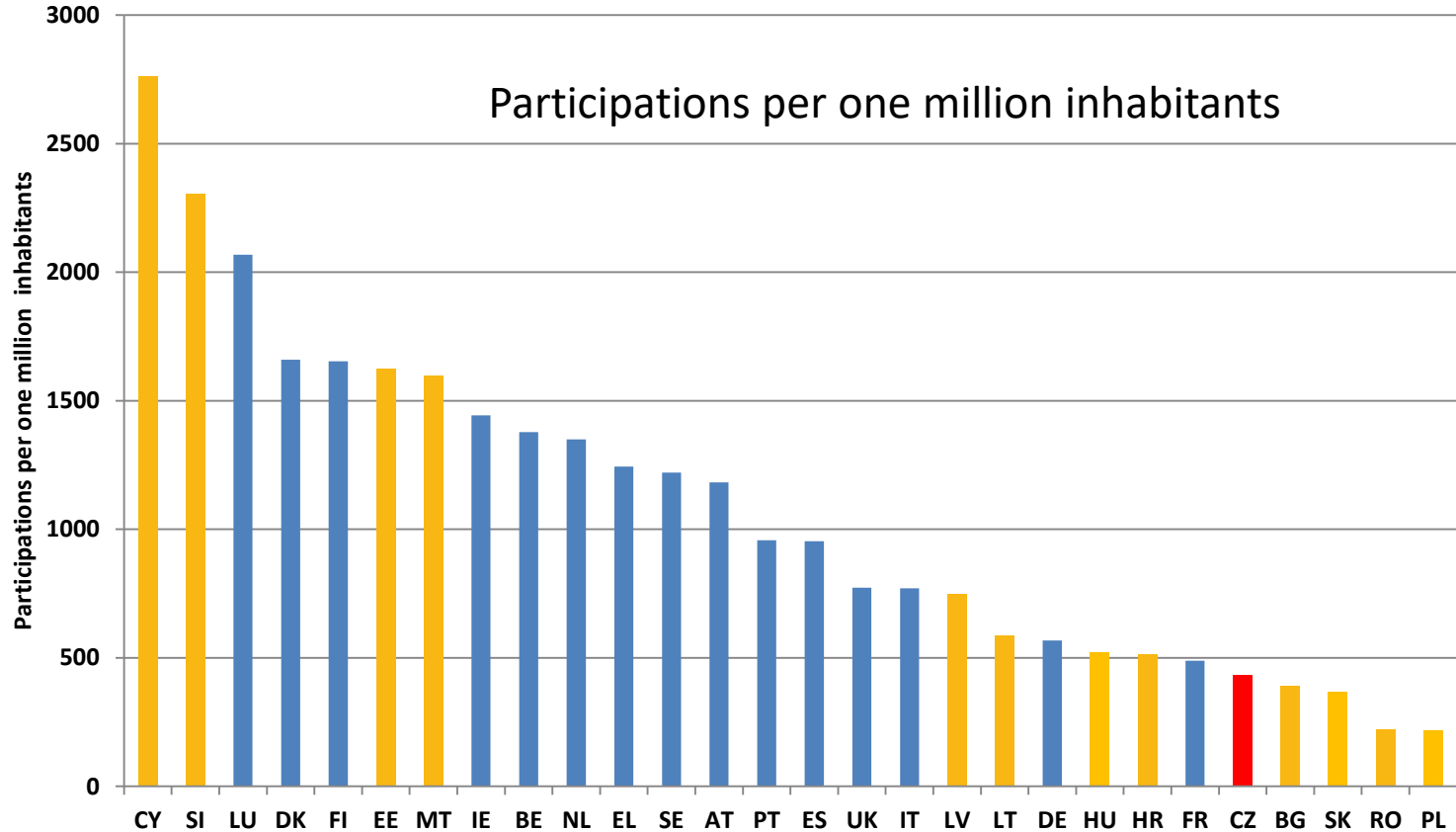


Excluded outliers: CY (771, 3624), MT(1010,2352), SI (3153, 2743)

The Old Member States received much higher support from the FP7 than the New Member States (likely due to their low researcher's salaries)

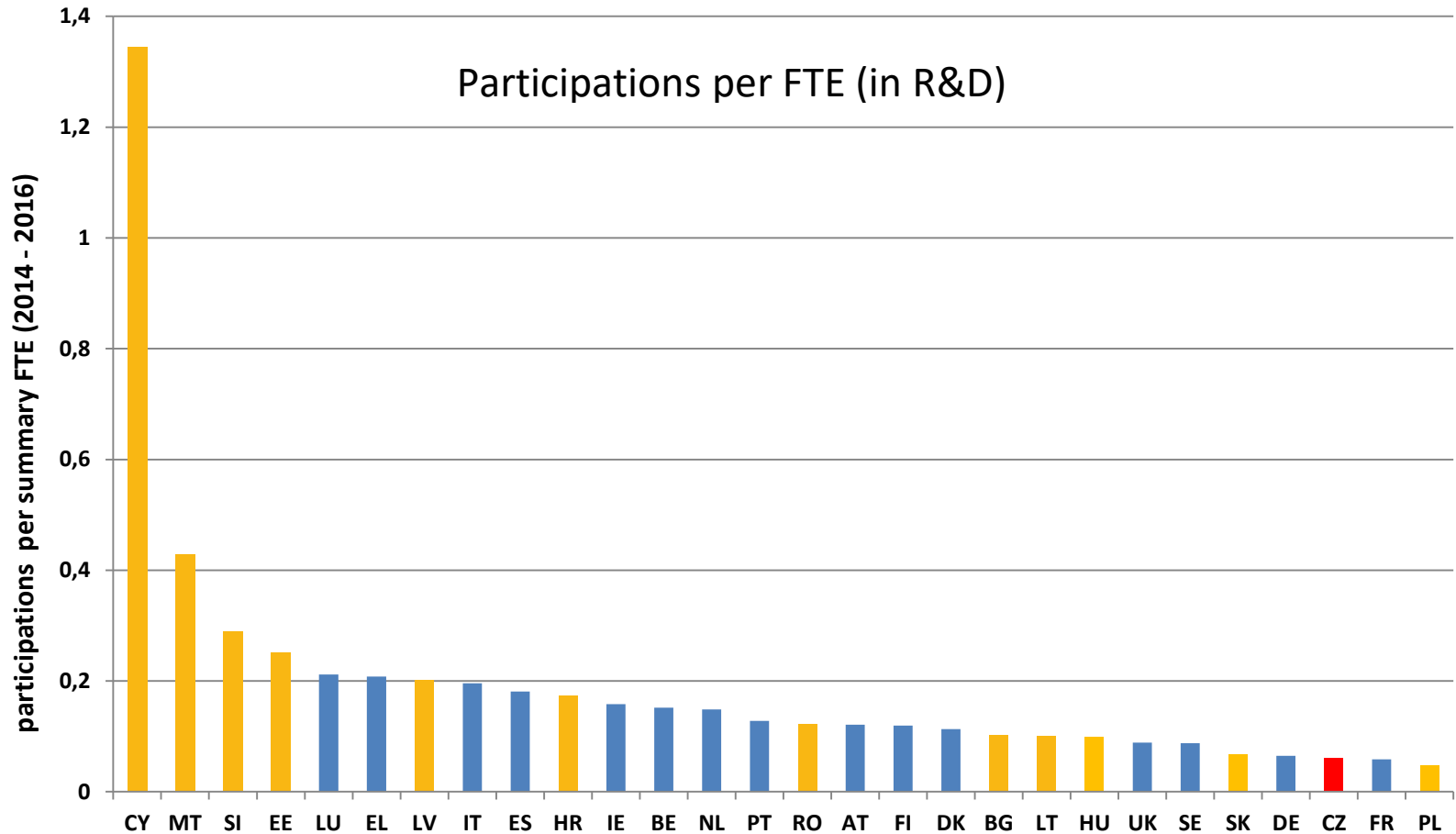


EU28 activity in preparing H2020 project proposals



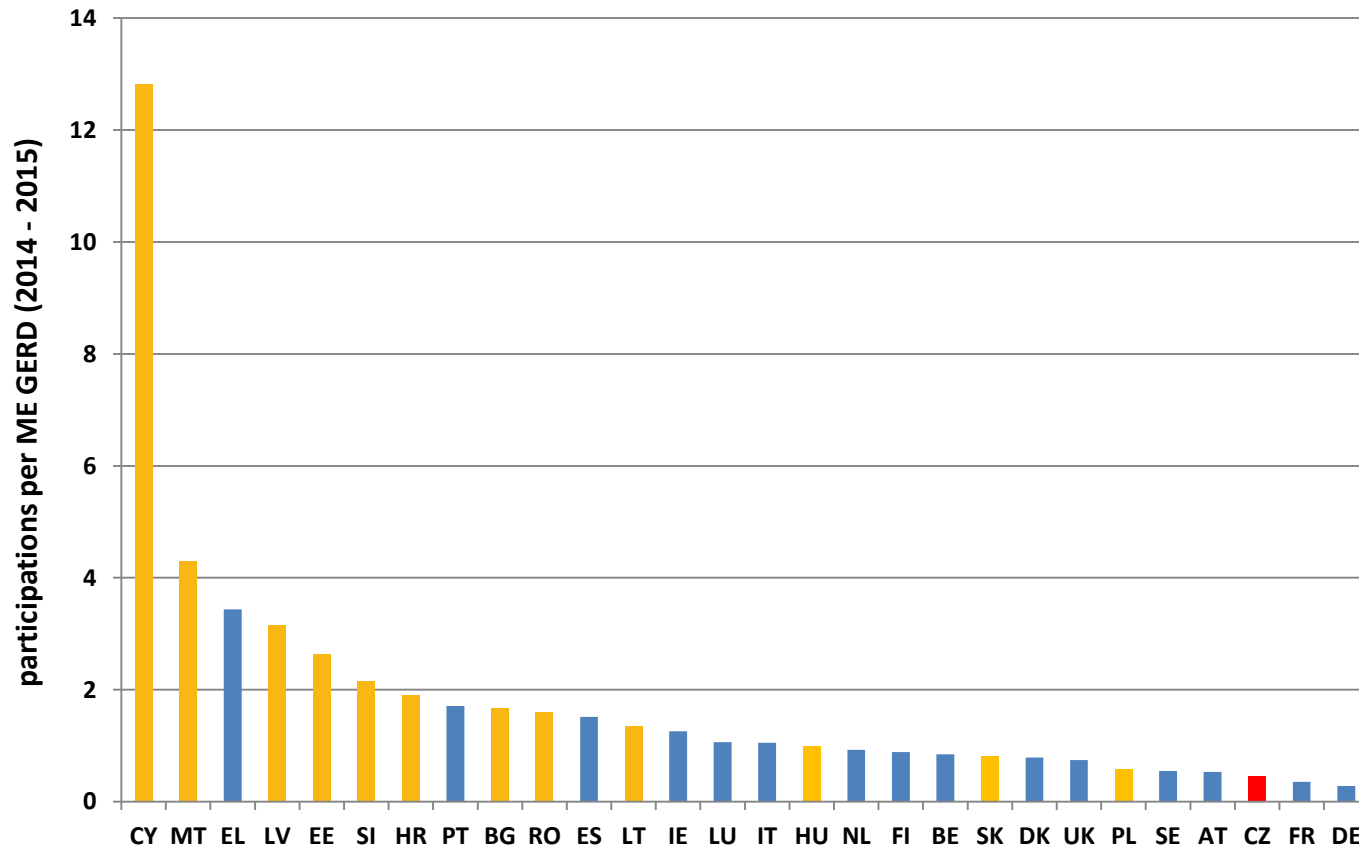
V4 has 12,6 % of the EU28 population but represents only 5,3% of EU28 participations in the eligible proposals submitted to H2020

EU28 activity in preparing H2020 eligible project proposals

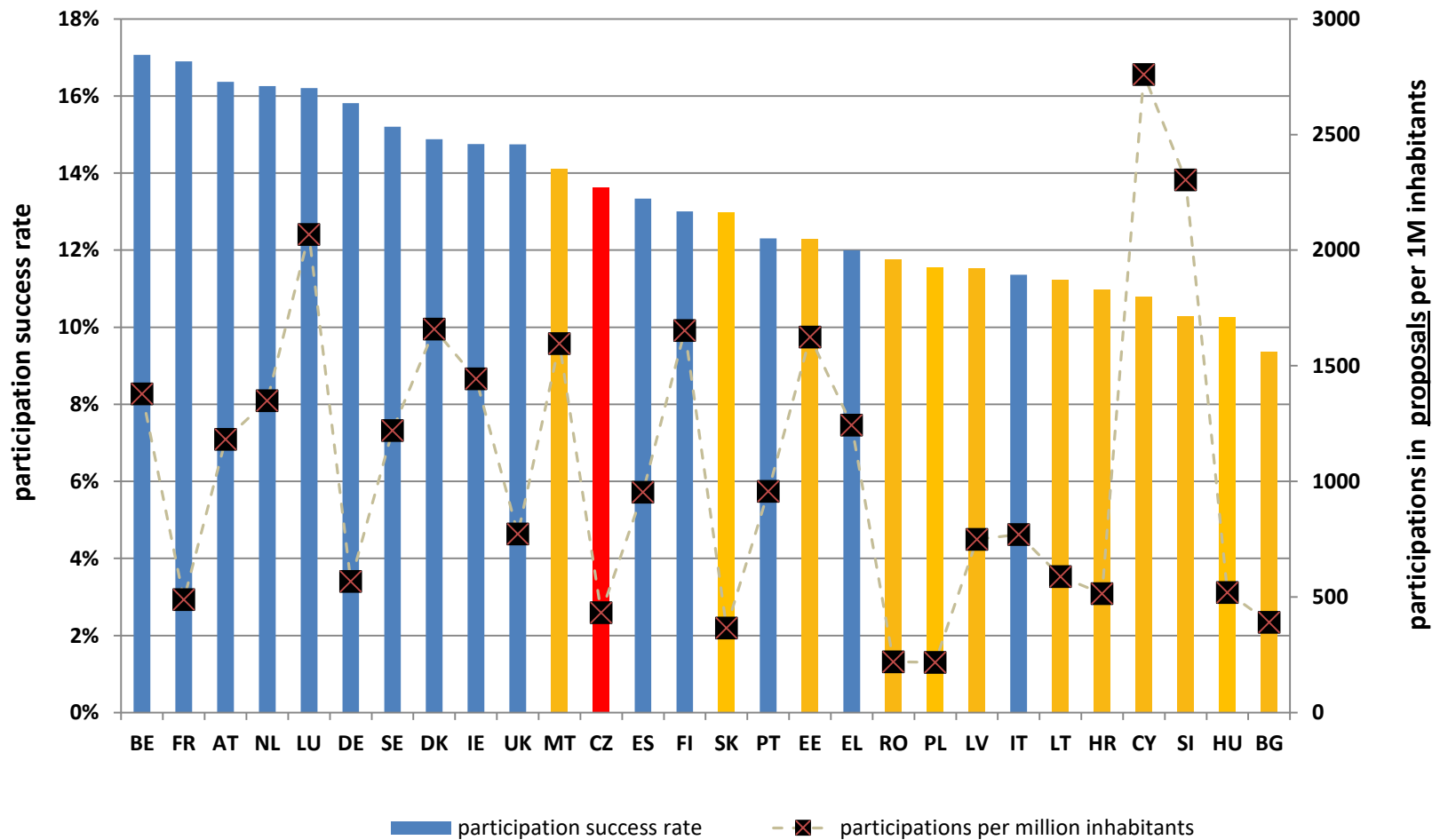


EU28 activity in preparing H2020 eligible project proposals

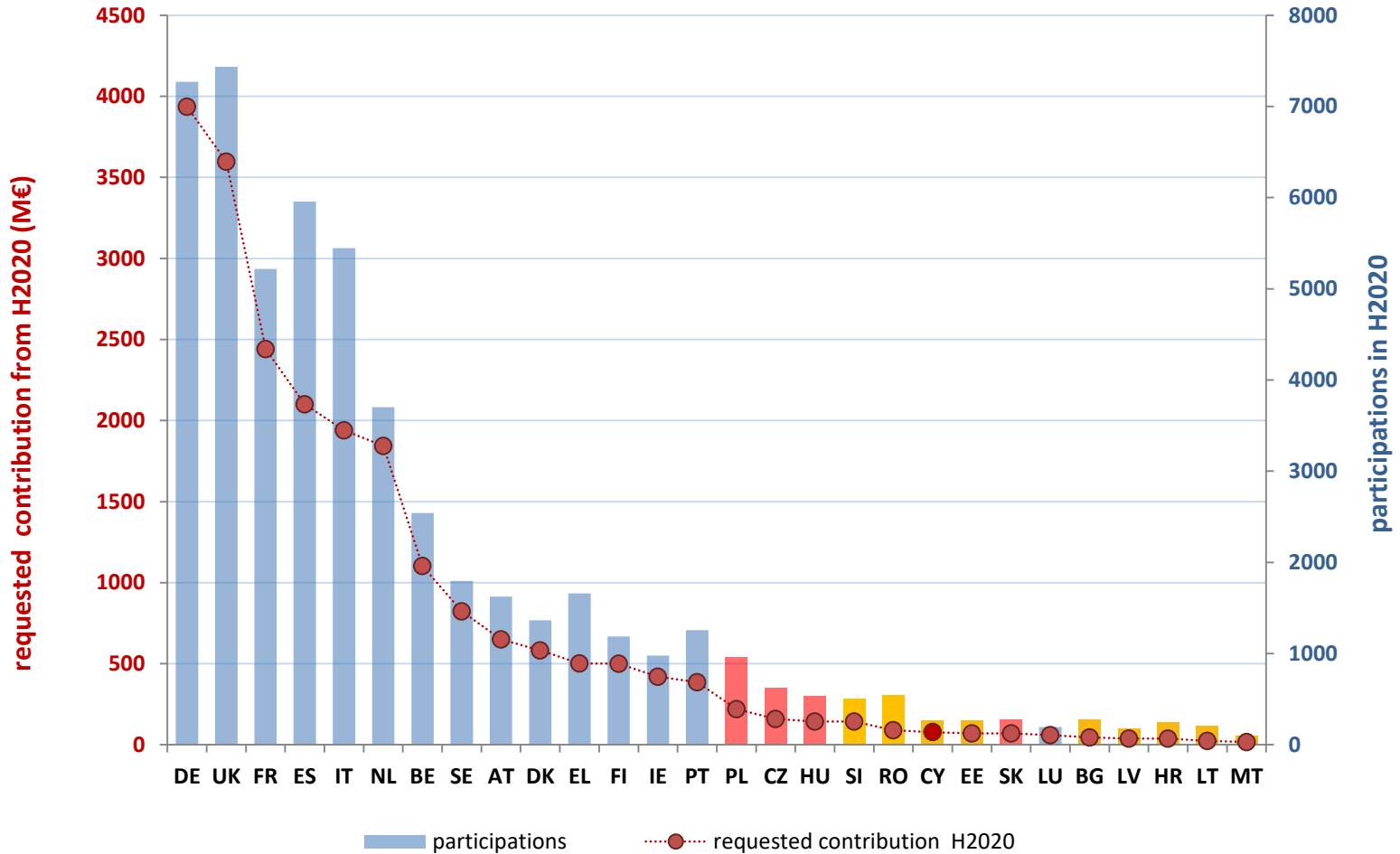
Given GERD the New member States are more active in preparing project proposals than the Old Member States



Participation success rates of the EU member states in H2020



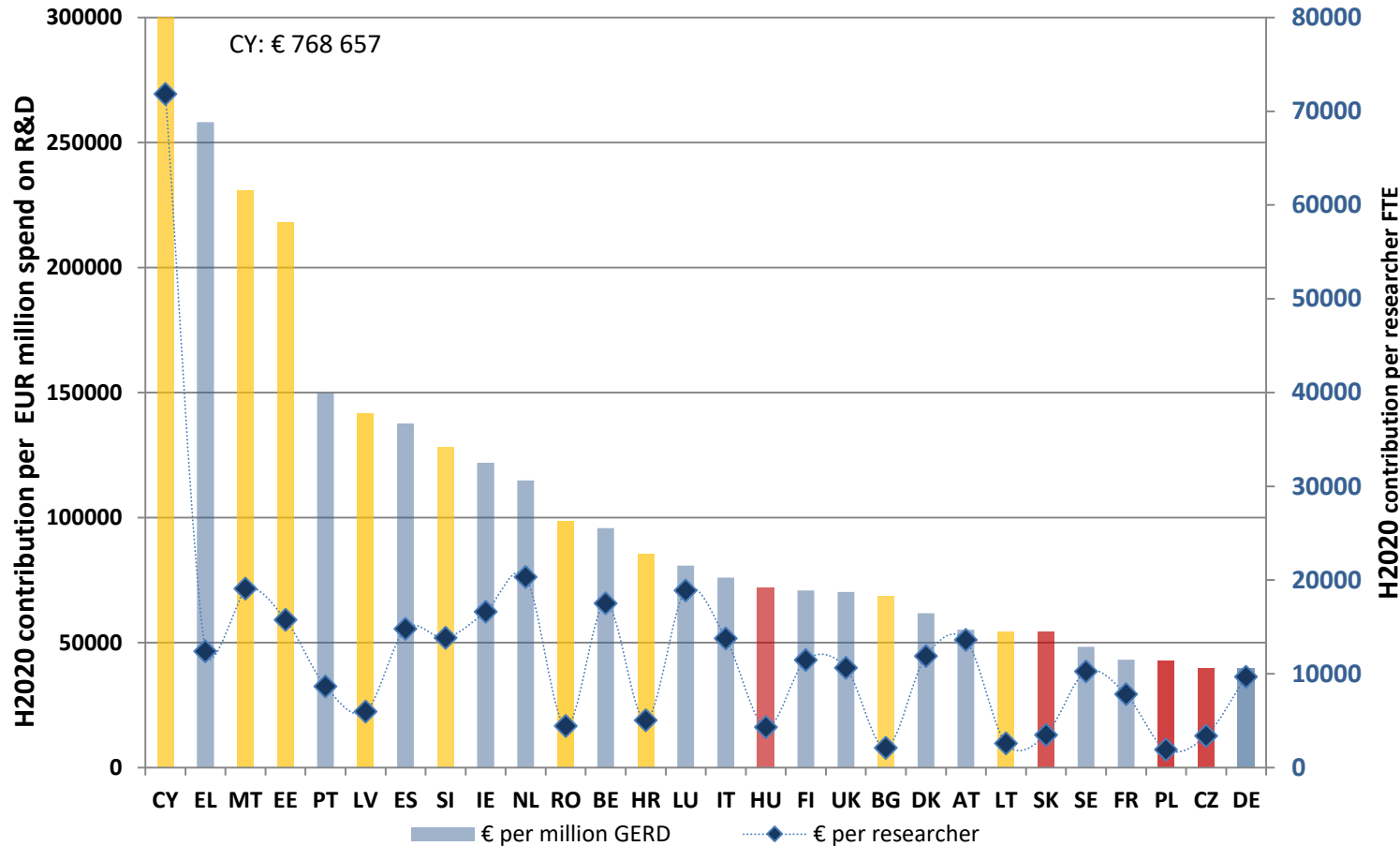
Basic EU28 statistics of grants on participations and requested contribution from H2020



H2020 contribution per EUR million on R&D

H2020 contribution per research FTE

Source: Interim evaluation of H2020, EC staff working document (???)



Comparisons:
Per researcher
 EU15: € 11 423
 EU13: € 3 812
CZ: € 3 393

Per € million spend on R&D:
 EU15: € 63 277
 EU13: € 67
 254!!!
 i.e. by 6,7% more
CZ: € 39 751

EU13 represent 8,5% participations and receive 4,4% of the (so far distributed) funding

Collaboration with TOPN institutions in the FP7 and H2020

Definition of **TOPN** institutions

1. **TOP** institutions = those that **received from the EC highest support for their participation to solve the FP projects**. (technically: rank the institutions participating in the FP according to their total support that they received from the FP) .
2. TOPN = select „first **N** TOP institutions“ from the ranking sub 1.
 - rational choice of N: **N is the smallest number of institutions that participated in solving the FP projects to which the EC allocated 51% of the FP budget distributed among the participants.**

TOPN can be defined for the whole FP or for some specified part of it (e.g. Societal challenge focused on health research).

TOP 15 institutions of the FP7

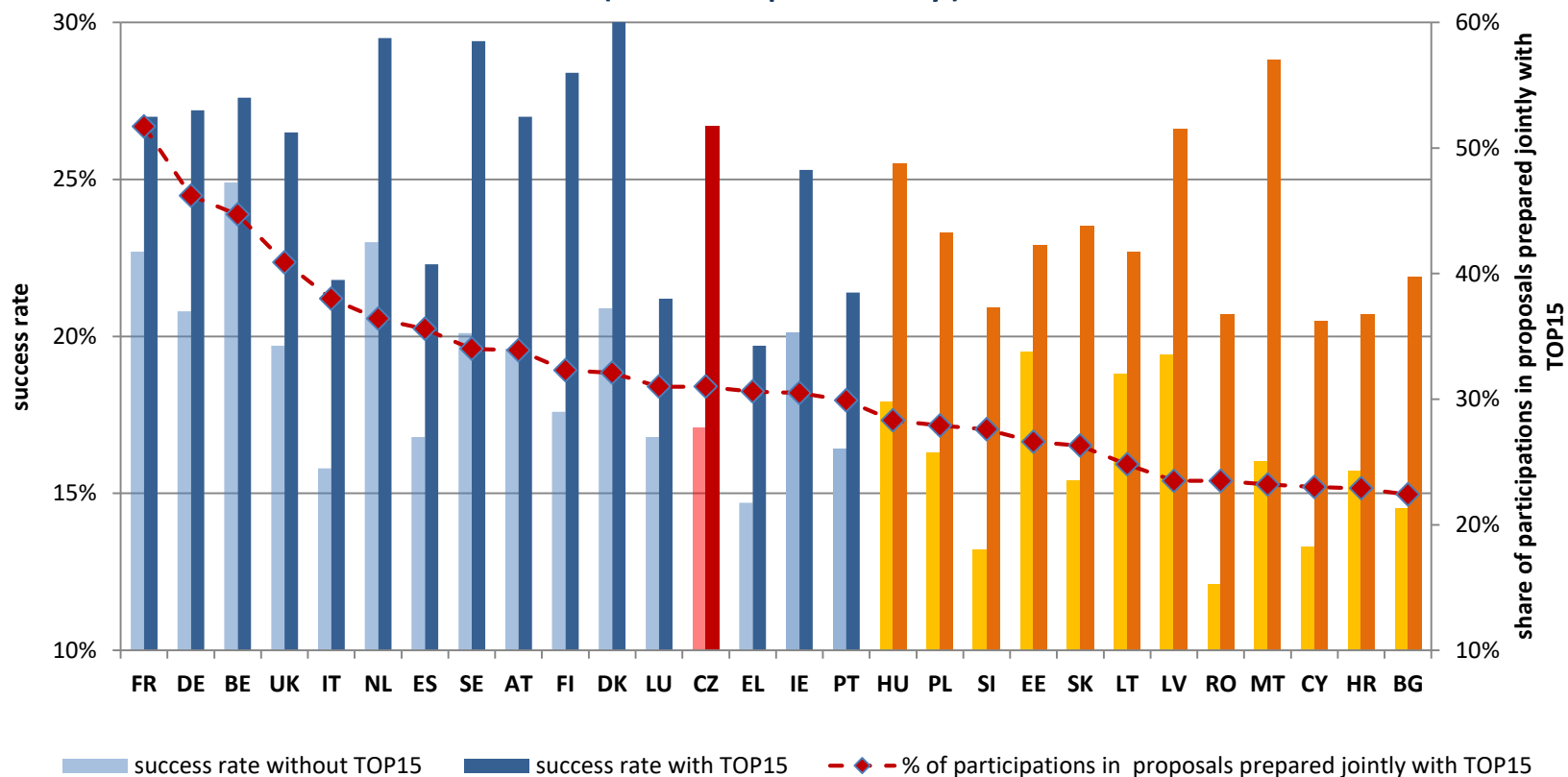
| FP7 TOP15 institutions | country | Participations | Support (M€) |
|--|----------------|-----------------------|---------------------|
| CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE | FR | 1524 | 793 |
| FRAUNHOFER-GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG | DE | 1205 | 568 |
| THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD | UK | 719 | 437 |
| THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE | UK | 737 | 424 |
| COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES | FR | 745 | 423 |
| MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V. | DE | 665 | 412 |
| UNIVERSITY COLLEGE LONDON | UK | 600 | 351 |
| EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH | CH | 562 | 337 |
| IMPERIAL COLLEGE OF SCIENCE, TECHNOLOGY AND MEDICINE | UK | 657 | 325 |
| ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE | CH | 508 | 305 |
| INSTITUT NATIONAL DE LA SANTE ET DE LA RECHERCHE MEDICALE) | FR | 430 | 295 |
| KATHOLIEKE UNIVERSITEIT LEUVEN | BE | 549 | 263 |
| AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS | ES | 709 | 260 |
| THE UNIVERSITY OF EDINBURGH | UK | 414 | 234 |
| CONSIGLIO NAZIONALE DELLE RICERCHE | IT | 694 | 230 |

TOP20 institutions of the H2020 (2014 – 2016)

| H2020 TOP20 institutions | country | Participations |
|---|---------|----------------|
| CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE CNRS | FR | 569 |
| FRAUNHOFER GESELLSCHAFT ZUR FOERDERUNG DER ANGEWANDTEN FORSCHUNG E.V. | DE | 455 |
| THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF CAMBRIDGE | UK | 317 |
| THE CHANCELLOR, MASTERS AND SCHOLARS OF THE UNIVERSITY OF OXFORD | UK | 294 |
| COMMISSARIAT A L ENERGIE ATOMIQUE ET AUX ENERGIES ALTERNATIVES | FR | 291 |
| AGENCIA ESTATAL CONSEJO SUPERIOR DE INVESTIGACIONES CIENTIFICAS | ES | 286 |
| UNIVERSITY COLLEGE LONDON | UK | 283 |
| CONSIGLIO NAZIONALE DELLE RICERCHE | IT | 281 |
| KOBENHAVNS UNIVERSITET | DK | 261 |
| MAX-PLANCK-GESELLSCHAFT ZUR FORDERUNG DER WISSENSCHAFTEN EV | DE | 257 |
| IMPERIAL COLLEGE OF SCIENCE TECHNOLOGY AND MEDICINE | UK | 235 |
| KATHOLIEKE UNIVERSITEIT LEUVEN | BE | 214 |
| TECHNISCHE UNIVERSITEIT DELFT | NL | 191 |
| DEUTSCHES ZENTRUM FUER LUFT - UND RAUMFAHRT EV | DE | 191 |
| THE UNIVERSITY OF EDINBURGH | UK | 172 |
| Teknologian tutkimuskeskus VTT Oy | FI | 159 |
| EIDGENOESSISCHE TECHNISCHE HOCHSCHULE ZUERICH | CH | 159 |
| ECOLE POLYTECHNIQUE FEDERALE DE LAUSANNE | CH | 158 |
| POLITECNICO DI MILANO | IT | 151 |
| DANMARKS TEKNISKE UNIVERSITET | DK | 146 |

Preparing project proposals jointly with TOP15 of the FP7 considerably increases the country success rate.

Percentage of participations in proposals prepared jointly with TOP15 discriminates (almost precisely) between NMS and OMS.



Participation success rate

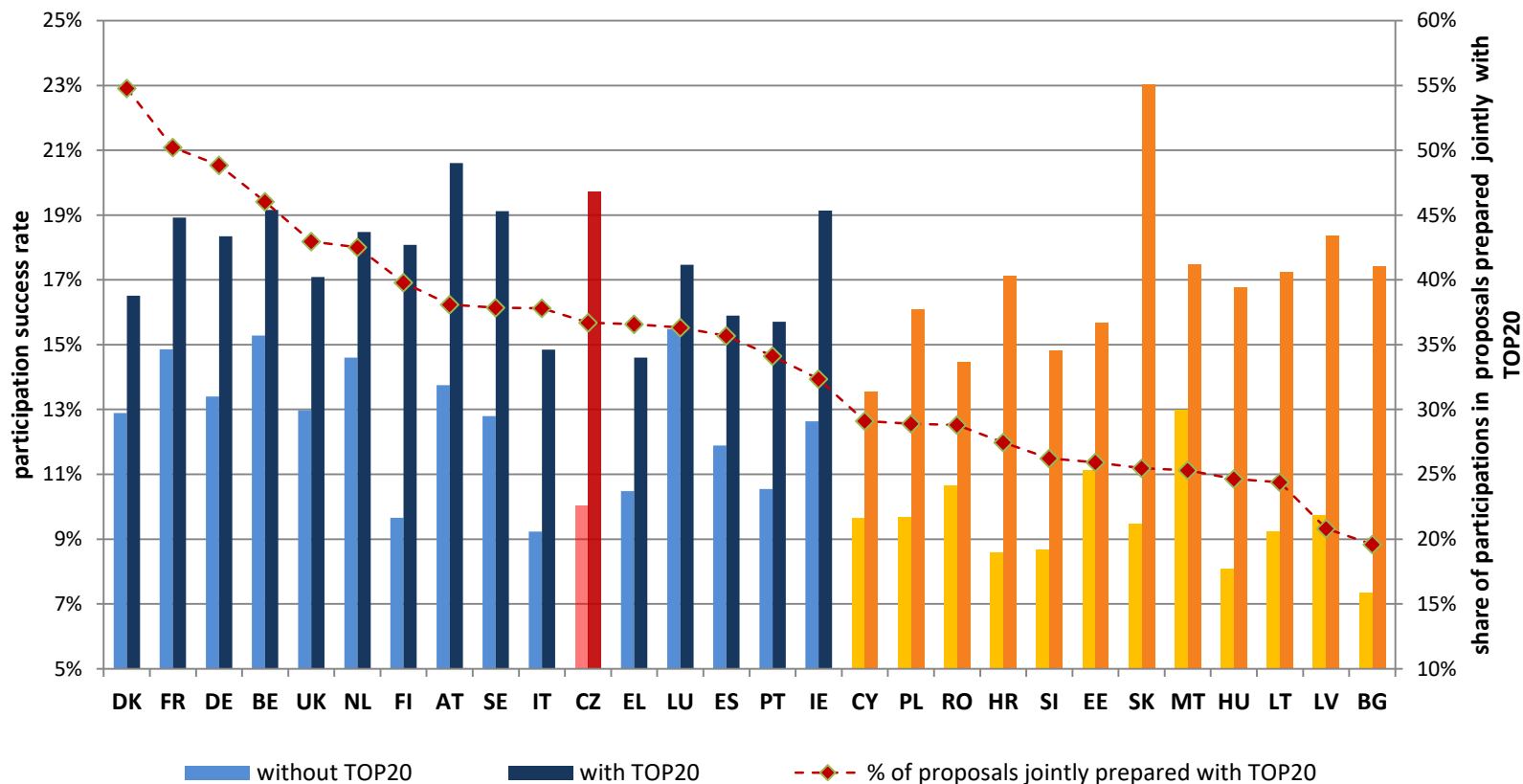
EU13: without TOP15 = 15,7%, with TOP15 = 23,6%

EU15: without TOP15 = 19,3%, with TOP15 = 25,6%

CZ: without TOP15 = 17,1%, with TOP15 = 26.7%

Preparing project proposals jointly with TOP20 considerably increases the country success rate.

Percentage of participations in proposals prepared jointly with TOP20 discriminates (almost precisely) between NMS and OMS.



Participation success rate

EU13: without TOP20 = 9,4 %, with TOP20 = 16,8% !!!

EU15: without TOP20 = 12,3 %, with TOP20 = 17,4 %

CZ: without TOP20 = 10%, with TOP20 = 19,7%

Conclusions

- The long term low participation of the New Member States in the FPs is the consequence of their long term under-funding of R&D&I. Thus sustainable increase of the NMS GERD per capita , GERD/GDP is advisable. The same holds good particularly for CZ.
- The Czech Republic has very low the ratio received support from the FP7 or H2020/ per € million GERD (it is lowest among EU28) . However, the CZ has among the NMS the highest percentage of FP7/H2020 proposals prepared jointly with FP7 TOP15/H2020 TOP20 institutions.
- The NMS should more collaborate with the H2020 TOP institutions (TOP for the total H2020 as well as TOP for specific sectors of the H2020). Measures making it possible to enhance this collaboration should be mainly implemented at national/institutional level and the EC can accommodate its own measures supporting this collaboration (e.g. in the evaluation of project proposals)