Delivering the new science to patients

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Looking to the future needs

Demographic Development

- 65+ Years
  - 2010: 16%
  - 2020: 16%
  - 2030: 15%
  - 2040: 14%
  - 2050: 14%
  - 2060: 14%

- 15-64 Years
  - 2010: 57%
  - 2020: 57%
  - 2030: 59%
  - 2040: 59%
  - 2050: 57%
  - 2060: 56%

- 0-14 Years
  - 2010: 30%
  - 2020: 30%
  - 2030: 27%
  - 2040: 27%
  - 2050: 29%
  - 2060: 30%

- 65+ Years: 87mn → 152mn (+75%)

System Impact: Severity, length and increased incidence

- Increase in severity of Degenerative Diseases†
  - 2006: 3.2
  - 2050: 7.5
  +136%

- Extended impact of Chronic Diseases△
  - 2009: 16.4
  - 2030: 19.1
  +16%

- Increased incidence of Cancer♯
  - 2010: 2.3
  - 2020: 2.7
  +16%

Source: * European Commission (2012); † Hopkins University (2007); △ UK Dept. of Health (2010), European Commission; ♯ WHO (2013)
Finding solutions for unmet needs in cancer has been a major recent focus for the industry.

Growth in early stage investment in CNS reflects appreciation for the need to identify breakthroughs in major challenge of degenerative mental health diseases.

Decreasing activity in areas like cardiovascular care reflect the adequate nature of existing standards of treatment in some areas (e.g. hypertension) and some residual unmet needs (e.g. stroke prevention).
and (largely) aligned with needs

The pharmaceutical industry have to a large extent focused their innovation on the unmet needs of EU-25 countries.

A minor ‘innovation gap’ can be identified within neuropsychiatric conditions where the share of DALYs lost still exceed the share of new product approvals.

Especially for infectious and parasitic diseases and diabetes mellitus, the identified ‘innovation overload’ could be explained by the fact that these diseases largely occur in developing countries where the DALYs (and thus the need for innovation) is substantially greater than in EU-25.

R&D approaches are evolving

Multiple approaches to revitalising research and development

- **Level 1**: Increased R&D Spend

- **Level 2**: R&D Reorganisation, Biotech In-licensing, Industry Consolidation

- **Level 3**: Outsourcing, Open Source, Cooperative Tech development

**Ease of Implementation**

**Simplifying R&D**

- Roche’s restructured management process for managing its’ new Disease Biology Area R&D organization

**Decoupling R&D**

- Pfizer decoupled its R&D - Tasking R with creating knowledge and understanding and D on efficient execution of focused development programs through targeted business units

**Managing the R&D interface**

- GSK’s use of Centres of Excellence to efficiently manage the R&D interface for clarity and speed

**Accessing global knowledge to solve in house R&D problems**

- Eli Lily’s creation of its Innocentive subsidiary which is essentially a global exchange for problems and solutions

**Virtual R&D processes**

- TAP and King Pharmaceuticals outsourcing of Research, inlicensing development candidates and concentrating on drug development, with the help of external suppliers e.g. CROs

Source: Deloitte: Change and disruption in the pharmaceutical industry (2007).
The European Commission's Seventh Framework Programme contributes €1 billion to the IMI research programme for participation of public partners in collaborative projects.

That amount will be matched by mainly in kind contributions (consisting mostly of research activities) worth at least another €1 billion euro from member companies of the European Federation of Pharmaceutical Industries and Associations (EFPIA).

Public funding goes exclusively to public partners: (including small businesses) Academia, Hospitals, Patient Groups, Governmental Agencies, SMEs, etc.
Strategic Research Agenda

Comprehensive framework for a 10-year programme

Prepared with input from 80+ organisations (internet and targeted)

Project ideas from industry and third parties will be screened against it

http://goo.gl/jqMP9g
All therapeutic areas covered by the Strategic Research Agenda

WHO 2014 report on priority medicines for Europe and the World: Percentage of DALYs for top 20 high burden diseases and conditions

Therapeutic Areas in IMI2 SRA (no priority order)

6.1. Antimicrobial resistance
6.2. Osteoarthritis
6.3. Cardiovascular diseases
6.4. Diabetes
6.5. Neurodegenerative diseases
6.6. Psychiatric diseases
6.7. Respiratory diseases
6.8. Autoimmune diseases
6.9. Ageing-associated diseases
6.10. Oncology
6.11. Rare/Orphan Diseases
6.12. Vaccines
Towards precision-medicine

Doctor: “If this doesn’t help, please come back, and I will prescribe something else.”

Patient: “Is it not possible to get something else right away?”