

Technological innovation

		2011	2012	2013
R&D expenditures	(€ million)	246	263	218
- R&D expenditures net of general and administrative costs		190	211	197
Tangible value generated by R&D activities ^(a)		-	-	937
Personnel employed in R&D activities (full time equivalent)	(number)	925	975	986
First patent filing applications		79	74	59
Existing patents		8,884	8,931	9,427
Patents average life	(years)	8.84	8.86	9.26

(a) Recent refinements made to the calculation methodology make the 2013 value non comparable with the years 2011 and 2012 which aren't therefore reported. The 2013 value refers to E&P activities, G&P, R&M and Versalis sectors.

Eni's financial commitment in the field of scientific research and technological development amounted to €197million in 2013 (or €218 million if the general overheads attributable to research activities and amortization and depreciation are included).

The tangible value generated by R&D is measured by the economic benefits related to the application of the innovative product/process technologies. In detail, the total tangible benefit is measured as 100% of the company share [of profits] from projects involving the application of technology, before tax. The economic benefits may be based on actual results or expected value (Net Present Value, NPV).

The assumptions applied on a case by case basis for the calculation are shared with the relevant technical structures/business lines. The tangible benefits are identified in a "what if" scenario, that is, as the difference derived from comparison with the application of the best alternative technology or, in the case of new products, as the difference compared to the margin generated by the products replaced. The value created in 2013 by the innovative products and technologies of the E&P, G&P, R&M sectors and Versalis amounted overall to €937 million. Compared to the overall value generated by R&D, the share based on actuals is 77%, and on expected return (assessed in terms of Net Present Value) is 23%. Compared to the cost incurred by Eni (net of Saipem) for R&D activities, the value created gives rise to a benefit/cost ratio of 5.7 in 2013.

The people involved in R&D activities as of December 31, 2013 numbered 986 persons (FTE), in line with the figure from 2012.

In terms of management of the Intellectual Property supporting technological innovation, in addition to the 59 new patent applications, 2013 was dedicated to conducting the evaluations (19) needed to determine the freedom for the implementation of the proprietary technologies closest to industrial production, with respect to third party rights.

The size of the total patent portfolio at the end of 2013 showed an increase of 5.6% compared to the previous year. The increase relates to the portfolio of Eni, Versalis and Engineering & Construction and is attributable mainly to the extension of protection overseas for inventions patented in previous years.

Knowledge management

(number)	2011	2012	2013
Knowledge community/network by application sector	58	63	65
- business	53	53	55
- transversal	5	10	10
Participants in knowledge community/network by application sector	3,634	4,732	5,676
- business	3,376	4,098	4,909
- transversal	258	634	767

In 2013, knowledge management initiatives confirmed the trend towards growing the dissemination of knowledge already demonstrated in recent years, thus evidencing the continued investment in tools and processes aimed at improving knowledge management and knowledge sharing and dissemination among Eni's people (5,676 participants, up 20% compared to 2012). During 2013, the design, development and launch of the new E&P intranet for knowledge management was completed, called #KMS, available throughout Eni. Among the most important innovations, in addition to the ease of use and development of up-to-date features for collaborative and professional networking, #KMS can display people, expertise, geographical areas and technical disciplines, creating greater opportunities for multidisciplinary and multicultural synergies among users and guaranteeing maximum accessibility to Communities of Practice, KM Webinars – the use of which is constantly growing (290 webinars = up 38% compared to 2012, with total participation of 12,700) – and knowledge repositories.

Likewise through the new #KMS portal, during 2013 the pilot project Innovation Idea Management (IIM) was developed, with the aim of increasing the innovative capacity of the E&P Division and promoting the creativity of Eni's People worldwide. This is an innovative approach based on the mechanisms of creative collaboration, allowing free participation by Eni people, regardless of their geographical location and seniority. The pilot was successfully concluded in November 2013 and the IIM process became an integral part of the function provided by #KMS.