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Technological innovation expenditure for 2016 was estimated at €192.8 million.

Business Innovation: 2014-2016

Between 2014 and 2016, 511 enterprises employing at least 10 persons, or 27.1 per cent of the total, undertook innovation activity (Table 1). Results show that 85 enterprises were engaged solely in technological innovation, 148 enterprises were engaged in non-technological innovation and the remaining 278 were involved in both technological and non-technological innovation.

Technological innovation expenditure for 2016 was estimated at €192.8 million. Acquisition of machinery and equipment was predominant with a total of €128.4 million (66.6 per cent), followed by intramural R&D amounting to €32.4 million (16.8 per cent) (Table 2).

The survey shows that 9.1 per cent of all technologically innovative enterprises found that it was highly important to have cooperation agreements with suppliers of equipment, materials, components or software. This was followed by other enterprises within the same enterprise group (Table 3). The survey revealed that 426 enterprises were engaged in organisational and/or marketing innovations, with organisational innovation predominant over marketing innovation (Table 4). Organisational and/or marketing innovation was predominant in wholesale and retail trade activities, manufacturing, accommodation and food service activities and, professional, scientific and technical activities respectively (Table 5).

Low demand for innovations in the market and no need to innovate due to previous innovations were the two main obstacles which hindered non-innovative enterprises from engaging in innovative activities (Table 6).

Only 6.0 per cent of enterprises applied for at least one type of intellectual property right or licence. Registering a trademark and applying for a patent were the main types of intellectual property rights and licences applied for (Table 7).

The number of innovative enterprises which had introduced at least one logistic innovation activity was 202. The main factors driving this type of innovation were inventory management systems, e-procurement and also digital supply chain management (Table 8) ■

Table 1. Number of enterprises by type of innovation activity: 2014-2016

	Size class: number employed			Total	Percentage Distribution
	10-49	50-249	250+		
Total Enterprises	1,480	341	67	1,888	100.0
Enterprises with Innovation Activity	357	124	30	511	27.1
Technological Innovation only *	64	18	3	85	4.5
<i>of which reported Innovation expenditure</i>	36	13	3	52	2.8
Both Technological and Non-Technological Innovation	187	68	23	278	14.7
<i>of which reported Innovation expenditure</i>	128	58	19	205	10.9
Non-Technological Innovation only	106	38	4	148	7.8
Non-Innovative Enterprises	1,123	217	37	1,377	72.9

*Technological innovative enterprises comprise those that have undertaken some form of technological innovation

Table 2. Technological innovation expenditure: 2016 ...

NACE Rev. 2	Economic Sector	Enterprises reporting Innovation Expenditure	Intramural R&D*	Extramural R&D	Acquisition of machinery and equipment	Acquisition of other external knowledge	Other**	Total Expenditure	Percentage total
			€000						
10	Manufacture of food products	13	715	-	672	-	403	1,790	0.9
18	Printing and reproduction of recorded media	3	4	-	268	-	-	272	0.1
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	5	885	22	71	-	-	978	0.5
22	Manufacture of rubber and plastic products	8	644	-	2,903	-	169	3,716	1.9
23	Manufacture of other non-metallic mineral products	5	-	-	137	814	1	952	0.5
25	Manufacture of fabricated metal products, except machinery and equipment	6	69	-	2,722	15	-	2,806	1.5
26	Manufacture of computer, electronic and optical products	5	1,682	52	1,352	-	121	3,207	1.7
27	Manufacture of electrical equipment	5	431	-	1,190	-	187	1,808	0.9
28	Manufacture of machinery and equipment n.e.c.	3	901	-	880	-	175	1,956	1.0
31	Manufacture of furniture	3	-	-	302	-	-	302	0.2
various	Other manufacturing (See methodological notes)	13	2,929	72	21,591	18	1,023	25,633	13.3
43	Specialised construction activities	5	-	-	331	-	16	347	0.2
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	4	-	50	669	-	-	719	0.4
46	Wholesale trade, except of motor vehicles and motorcycles	30	7,592	10	3,231	9,310	438	20,581	10.7
47	Retail trade, except of motor vehicles and motorcycles	23	250	-	1,146	20	230	1,646	0.9
49	Land transport	4	-	-	7,069	2,355	1,001	10,425	5.4

* Intramural R&D coverage in the survey is based on the Innovation methodology. Actual R&D expenditure for 2016 should be taken from NSO Release 108/2018 due to a more extensive coverage (refer to methodological note 4)

** This is composed of expenditure arising due to training for innovative activities, market introduction of innovations, design and any other expenditure arising from activities to implement new or significantly improved products and processes such as feasibility studies, testing, routine software development, tooling up, industrial engineering etc.

... Table 2. Technological innovation expenditure: 2016

NACE Rev. 2	Economic Sector	Enterprises reporting Innovation Expenditure	Intramural R&D*	Extramural R&D	Acquisition of machinery and equipment	Acquisition of other external knowledge	Other**	Total Expenditure	Percentage total
52	Warehousing and support activities for transportation	7	175	500	4,306	580	711	6,272	3.3
55	Accommodation	11	-	10	8,136	45	262	8,453	4.4
56	Food and beverage service activities	9	33	9	135	10	24	211	0.1
58	Publishing activities	3	688	79	-	-	35	802	0.4
61	Telecommunications	4	190	-	18,661	-	346	19,197	10.0
62	Computer programming	21	13,692	365	71	213	3,036	17,377	9.0
64	Financial service activities, except insurance and pension funding	10	150	688	7,880	4,089	504	13,311	6.9
65	Insurance	4	50	50	719	-	77	896	0.5
66	Activities auxiliary to financial services and insurance activities	9	398	-	174	46	453	1,071	0.6
69	Legal and accounting activities	4	-	-	34	-	118	152	0.1
70	Activities of head offices; management consultancy activities	3	-	20	561	-	28	609	0.3
71	Architectural and engineering activities; technical testing and analysis	6	58	800	500	-	15	1,373	0.7
73	Advertising and market research	4	5	20	10	-	153	188	0.1
74	Other professional, scientific and technical activities	7	-	-	272	2	94	368	0.2
various	Other non-manufacturing (see methodological notes)	23	823	940	42,437	510	632	45,342	23.5
Total		261	32,364	3,687	128,428	18,027	10,252	192,760	100.0

* Intramural R&D coverage in the survey is based on the Innovation methodology. Actual R&D expenditure for 2016 should be taken from NSO Release 108/2018 due to a more extensive coverage (refer to methodological note 4)

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Table 3. Number of technologically innovative enterprises having cooperation arrangements: 2014-2016

Cooperation partner	Technologically innovative			
	Size class: number employed			
	10-49	50-249	250+	Total
Total technologically innovative enterprises	251	86	26	363
At least one cooperation arrangement	26	20	6	52
No cooperation arrangement	225	66	20	311
Other enterprises within your enterprise group	12	15	2	29
Suppliers of equipment, materials, components or software	16	12	5	33
Clients or customers from the private sector	9	7	2	18
Clients or customers from the public sector	4	3	1	8
Competitors and other enterprises in your sector	7	4	2	13
Consultants and commercial laboratories	4	7	4	15
Universities or other higher education institutions	4	11	1	16
Government or public research institutes	5	4	2	11
Private research institutions	2	4	-	6

Note: Enterprises may have more than one cooperation arrangement. As a result, the total enterprises may only be summed up per cooperation partner and not by size class.

Table 4. Number of enterprises introducing organisational and marketing innovations: 2014-2016

Type of innovation	Size class: number employed			Total
	10-49	50-249	250+	
Enterprises introducing organisational and/or marketing innovations*	293	109	24	426
Enterprises introducing organisational and marketing innovations	135	47	13	195
Enterprises introducing organisational innovation only	91	37	4	132
Enterprises introducing marketing innovation only	67	25	7	99

* Enterprises introduced organisational and/or marketing innovations, regardless if with or without technological innovation

Table 5. Number of enterprises introducing organisational and marketing innovation by NACE section: 2014-2016

NACE Rev. 2	Economic sector	Enterprises introducing organisational and marketing innovations	Enterprises introducing organisational innovation only	Enterprises introducing marketing innovation only	Enterprises introducing organisational and/or marketing innovations
A	Agriculture, Forestry and Fishing	-	-	-	-
B	Mining and Quarrying	-	-	-	-
C	Manufacturing	28	26	11	65
D	Electricity, Gas, Steam and Air conditioning supply	-	1	-	1
E	Water supply; Sewerage, Waste management and Remediation activities	-	-	1	1
F	Construction	6	9	2	17
G	Wholesale and Retail trade	55	32	34	121
H	Transportation and Storage	13	7	5	25
I	Accommodation and Food service activities	24	8	15	47
J	Information and Communication	10	14	14	38
K	Financial and Insurance activities	18	8	5	31
L	Real Estate activities	5	-	2	7
M	Professional, Scientific and Technical activities	21	19	7	47
N	Administrative and Support Service activities	15	8	3	26
Total		195	132	99	426

Note: Enterprises introduced organisational and/or marketing innovations, regardless if with or without technological innovation.

Table 6. Number of non-innovative enterprises finding the following obstacles to innovate: 2014-2016

	Type of obstacle	Non-Innovative			
		Size class: number employed			
		10-49	50-249	250+	Total
	Total of non-innovative enterprises	1,123	217	37	1,377
	<i>At least one obstacle as 'high'</i>	180	46	4	230
	<i>At least one obstacle as 'medium' or 'low'</i>	349	72	10	431
<i>No compelling reason to innovate</i>	Low demand for innovations in the market	309	69	9	387
	No need to innovate due to previous innovations	251	65	9	325
	No need to innovate due to very little competition in your enterprises's market	243	54	9	306
	Lack of good ideas for innovation	190	43	8	241
<i>Considered innovating, but barriers to innovation too large</i>	Lack of internal finance for innovation	40	6	-	46
	Lack of credit or private equity	37	5	-	42
	Innovation costs too high	40	7	1	48
	Lack of skilled employees within your enterprise	36	5	1	42
	Lack of collaboration partners	27	5	-	32
	Difficulties in obtaining government grants or subsidies for innovation	35	5	-	40
	Uncertain market demand or your ideas for innovations	33	7	-	40
	Too much competition in your market	37	7	-	44
	Legislation/regulation that generated excessive burden	35	6	-	41
	Legislation/regulation that created uncertainty	33	5	-	38
	Legislation/regulation that lacked consistency across the EU	30	5	-	35

Note: Enterprises may record more than one obstacle as 'high', 'medium' or 'low'. As a result, the total enterprises may only be summed up per obstacle and not by size class.

Table 7. Number of enterprises applying for intellectual property rights or licensing: 2014-2016

Type of variable	Total Enterprises			
	Size class: number employed			Total
	10-49	50-249	250+	
Total Enterprises	1,480	341	67	1,888
At least one type of intellectual property rights or licensing	77	27	9	113
No type of intellectual property rights or licensing	1,403	314	58	1,775
Applied for a patent	14	8	1	23
Applied for a utility model	3	1	2	6
Registered an industrial design right	9	2	1	12
Registered a trademark	58	16	8	82
Used trade secrets	12	6	2	20
Claim copyright	9	4	1	14

Note: Enterprises may record more than one application. As a result, total enterprises may only be summed up per application and not by size class.

Table 8. Number of enterprises introducing logistics innovations: 2014-2016

Type of innovation	Size class: number employed			Total
	10-49	50-249	250+	
Total enterprises	1,480	341	67	1,888
At least one logistic innovation	130	58	14	202
No logistic innovations	1,350	283	53	1,686
Inventory management systems	69	29	10	108
Digital supply chain management	38	22	9	69
E-procurement	57	29	6	92
Unique and automatic identification of products within the whole supply chain	23	7	1	31
Reverse logistics	13	2	1	16
New delivery models	34	12	3	49
Improved shipment by redesign	12	8	4	24
Other	11	6	3	20

Methodological Notes

1. The Community Innovation Survey collects information about technical and non-technical innovative activities carried out in a specific three-year period in the business sector. The target population is the minimum coverage requested, namely total enterprises with 10 employed persons or more.
2. The statistical unit surveyed is the enterprise as per Council Regulation (EEC) No 2186/93. The Survey is conducted in accordance with the Commission Regulation on Innovation Statistics No 1450/2004.
3. The following activities (NACE Rev. 2) are included in the target population:
 - mining and quarrying (NACE 05-09)
 - manufacturing (NACE 10-33)
 - electricity, gas steam and air conditioning supply (NACE 35)
 - water supply sewerage, waste management and remediation activities (NACE 36-39)
 - wholesale trade, except of motor vehicles and motorcycles (NACE 46)
 - transportation and storage (NACE 49-53)
 - publishing activities (NACE 58)
 - motion picture, video and television programme production, sound recording and music publishing/programming and broadcasting activities (NACE 59-60)
 - telecommunications (NACE 61)
 - computer programming, consultancy and related activities (NACE 62)
 - information services activities (NACE 63)
 - financial and insurance activities (NACE 64-66)
 - architectural and engineering activities technical testing and analysis (NACE 71)
 - scientific research and development (NACE 72)
 - advertising and market research (NACE 73)

Additional coverage was also conducted for the following non-core activities:

- agriculture, forestry and fishing (NACE 01-03)
- construction (NACE 41-43)
- wholesale and retail trade and repair of motor vehicles and motorcycles (NACE 45)
- retail trade, except of motor vehicles and motorcycles (NACE 47)
- accommodation and food service activities (NACE 55-56)
- real estate activities (NACE 68)
- legal and accounting activities (NACE 69)
- activities of head offices management consultancy activities (NACE 70)
- other professional, scientific and technical activities (NACE 74)
- veterinary activities (NACE 75)
- rental and leasing activities (NACE 77)
- employment activities (NACE 78)
- travel agency, tour operator and other reservation services and related activities (NACE 79)
- security and investigation activities (NACE 80)
- services to buildings and landscape activities (NACE 81)
- office administrative, office support and other business support activities (NACE 82)

4. Notes on Table 2:

- Research and Development (R&D) Intramural Expenditure reported in Table 2 is collected from the Community Innovation Survey (CIS) 2016, which due to difference in the coverage of the survey is to be used only for the compilation for the Total Innovation expenditure for 2016. Actual R&D expenditure for 2016 should be taken from News Release 108/2018 - Research and Development in Malta.

- The following NACE sections were aggregated due to confidentiality:

'Other manufacturing' includes NACE divisions:

- Manufacture of beverages (NACE 11)
- Manufacture of wearing apparel (NACE 14)
- Manufacture of paper and paper products (NACE 17)
- Manufacture of chemicals and chemical products (NACE 20)
- Manufacture of motor vehicles, trailers and semi-trailers (NACE 29)
- Other manufacturing (NACE 32)
- Repair and installation of machinery and equipment (NACE 33)

'Other non-manufacturing' includes NACE divisions:

- Fishing and aquaculture (NACE 3)
- Electricity, gas, steam and air conditioning supply (NACE 35)
- Water collection, treatment and supply (NACE 36)
- Waste collection, treatment and disposal activities; materials recovery (NACE 38)
- Remediation activities and other waste management services (NACE 39)
- Water transport (NACE 50)
- Air transport (NACE 51)
- Postal and courier activities (NACE 53)
- Motion picture, video and television programme production, sound recording and music publishing activities (NACE 59)
- Programming and broadcasting activities (NACE60)
- Information service activities (NACE63)
- Real estate activities (NACE 68)
- Veterinary activities (NACE 75)
- Rental and leasing activities (NACE 77)
- Employment activities (NACE 78)
- Travel agency, tour operator reservation service and related activities (NACE 79)
- Security and investigation activities (NACE 80)
- Office administrative, office support and other business support activities (NACE 82)

5. **Definitions:**



- A **product innovation** is the market introduction of a new or significantly improved good or service with respect to its capabilities, user friendliness, components or sub-systems.
- A **process innovation** is the implementation of a new or significantly improved production process, distribution method, or supporting activity.
- An **organisational innovation** is a new organisational method in the enterprise business practices (including knowledge management), workplace organisation or external relations that has not been previously used by the enterprise.

- A **marketing innovation** is the implementation of new marketing concept or strategy that differs significantly from the enterprise's existing marketing methods and which has not been used before.

6. More information relating to this news release may be accessed at:

Classifications: <http://nso.gov.mt/metadata/classificationdetails.aspx?id=NACE Rev. 2>

Metadata: <http://nso.gov.mt/metadata/concepts.aspx>

European statistics comparable to data in this News Release are available at:

[EUROSTAT Website/Homepage/Statistics Database](#)

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