WEBINAR SERIES on
STATISTICAL EXPERIENCE
SHARING

INNOVATION STATISTICS

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• Why is so important to measure innovation statistics?
• What is innovation and how to measure it?
• Basic concepts, definitions and perspectives
• Questionnaire and background of the field studies
• Methodological base and survey process
• Recommendations and key aspects
• Web based application
• Dissemination
• Questions and remarks?
Why is so important to measure innovation statistics?
The fundamental outcomes of innovation

- Economic growth
- Future of jobs
- Increased well-being
- Reduced sickness, poverty and hunger
- Communication and educational accessibility
- Environmental sustainability
- Competitive advantage
- Performance and profitability
- Increased productivity
- Positive impact on company culture
What is innovation and how to measure it?
What is the innovation?

- Innovatus
  "do something in a new way"
- to improve or to replace a process, a product, or a service in the dictionary
- Innovation = Invention? / New idea?
- How has the term developed in the past years?

"This really is an innovative approach, but I'm afraid we can't consider it. It's never been done before."
Development of the concept


- Dosi, G. (1982), “Technological paradigms and technological trajectories: A suggested interpretation of the determinants and directions of technical change” – interactions between various actors and then tested on the market
**Development of the concept**


**Innovation systems**


*many interactions and feedbacks in knowledge creation and use / based on a learning process*
How to measure innovation and what is the Oslo Manual?

- collecting and interpreting data,
- international comparability,
- a platform for measuring innovation,
- support NSOs and other producers,
- direct value to users,
How to measure innovation and what is the Oslo Manual?

• a combination of formal statistical standards,

• advice on best practices,

• proposals for extending the measurement into new domains,

• international standard for innovation measurement since 1992
Previous editions of the Oslo Manual

- **The first edition (1992):**
  - covered innovation in manufacturing industries,
  - EC, Australia and Canada surveys based on this edition.

- **The second edition (1997):**
  - updated the concepts, definitions and methodology,
  - included several service industries,
  - guide for internationally comparable indicators.

- Both the first and second editions limited innovation to new or significantly improved “technological” products and processes.
Previous editions of the Oslo Manual

• **The third edition (2005):**
  - built on a large amount of data from innovation surveys worldwide,
  - contained experience gained from data users,
  - became a pathfinder for different levels of economic development.
  - The identification of product and process innovation with technological change was abandoned

<< *in order to include service innovations* >>

- two additional and complementary types of innovation: "organisational and marketing".
What are the main novelties of this edition?

• “There were major gaps in the evidence and questions about the role of innovation and what policies can do to influence it.”

• Compared to the third edition,
  – provides a conceptual framework and a general definition of innovation for all sectors,
  – provides extended methodological guidelines and describes methods for analyse,
  – extends guidance on the linkage of surveys with other sources,
  – updates and streamlines core definitions and taxonomies to reduce the complexity of innovation types,

!!! PLEASE LOOK INTO ‘CIS COMPARISON TABLE’!!
What are the main novelties of this edition?

– The revised definition “significant” change by comparing both new and improved innovations to the firm’s existing products or business processes.

– extensive discussion of the external environment of firms,

– emphasises the value of collecting data on all firms and promotes a broader set of data relevant to both non-innovative and innovation-active firms,

– provides guidance on measuring internal and external factors influencing business innovation.

– presents a glossary of key terms to facilitate translation efforts.
Basic concepts, definitions and perspectives
Four dimensions of innovation

1. Knowledge
2. Novelty
3. Implementation
4. Value creation
Four dimensions of innovation

Knowledge

✓ knowledge-based activities,
✓ understanding of information and the ability to use
✓ cognitive effort and is difficult to transfer

Novelty

✓ develop new ideas, models, methods or prototypes
✓ the characteristics of a product or process compared to alternatives
✓ the previous experiences
Four dimensions of innovation

Implementation

✓ to be considered an innovation, it needs to be implemented

✓ systematic efforts,

✓ not previously made available

Value creation

✓ innovation requires resources that could be used for other purposes,

✓ the realisation is uncertain and can only be fully assessed in some time,

✓ evolve over time and provide different types of benefits,
The conceptual foundations for innovation measurement

Management perspective:

how innovation can change a firm’s position in the market?

how to generate ideas for innovation?

Economic perspectives:

why organisations innovate?

the forces that drive innovation?

the factors that hinder it?

the macroeconomic effects of innovation on an industry, market or economy?
Definition of innovation activities and innovation

**Innovation activities**

✓ include all developmental, financial and commercial activities undertaken by a firm,

✓ are intended to result in an innovation,

✓ can result in an innovation be ongoing, postponed or abandoned.

**Business innovation**

✓ is a new or improved product or business process,

✓ differs significantly from the firm's previous products or business processes,

✓ has been introduced on the market or brought into use

✓ The minimum requirement for an innovation is --> product or business process must have one or more characteristics that are significantly different from those previously offered by or used by the firm.
Definition of innovation activities and innovation

Some items need to remind for innovation!

✓ The act of introduction is defined as implementation,

✓ first made available for use,

✓ firms make further adjustments —> **additional innovation**

✓ innovation also includes **diffusion**, 

✓ The “significant” difference concept in the definition of **excludes** minor changes or enhancements,

✓ **not require** an innovation to be a **commercial, financial or strategic success**, 

✓ **not require** to have a **positive value** for society or a **positive benefit** for the firm,
Innovation types

Two major types of innovation:

*product and business process*

CV 2016 based on third edition of the Oslo Manual collected data on

two types of product innovations,

three types of process innovations,

four types of organisational innovations,

four types of marketing innovations.
Product innovation is a new or improved good or service that differs significantly from the firm’s previous goods or services and that has been introduced on the market.

Main characteristics:

✓ must provide significant improvements

quality,  convenience,
technical specifications,  affordability,
reliability,  usability,

durability,  economic efficiency during use,

user friendliness
✓ can include financial attributes such as affordability and financial convenience,

✓ New designs or improved design features,

✓ New designs or improved design features enhancing the user utility,

✓ be made available to potential users, but not require the innovation to generate sales,

✓ use new knowledge or technologies, or be based on new uses or combinations of existing knowledge or technologies.
rumple proof tech
no wrinkles

shutters producing electricity

roll up
portability problem
helps cleaning

bacteria-repellent softer material

protects the pedestrians provides a little break
user friendliness

offer convenience

charge easily
inspiration
less noise
faster speed

simply
appearance
smart design for children

strollers and airplanes 😊
**Business process innovation**

✓ A business process innovation is a new or improved business process for one or more business functions that differs significantly from the firm’s previous business processes and which has been implemented within the firm.

**Main characteristics:**

✓ includes the core business function of producing goods and services and supporting functions,

✓ greater efficacy, resource efficiency, reliability and resilience, affordability, convenience and usability, reduce costs, improve product quality or working conditions etc.

✓ be considered as services for which the firm itself is the customer,

✓ Digital technologies and practices are pervasive and the implementation of business process innovations is often tied to the adoption and modification of techs.
<table>
<thead>
<tr>
<th>Short term</th>
<th>Details and subcategories</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Production of goods or services</td>
<td>Activities that transform inputs into goods or services, including engineering and related technical testing, analysis and certification activities to support production.</td>
</tr>
<tr>
<td>2. Distribution and logistics</td>
<td>This function includes: a) transportation and service delivery b) warehousing c) order processing.</td>
</tr>
<tr>
<td>3. Marketing and sales</td>
<td>This function includes: a) marketing methods including advertising (product promotion and placement, packaging of products), direct marketing (telemarketing), exhibitions and fairs, market research and other activities to develop new markets b) pricing strategies and methods c) sales and after-sales activities, including help desks other customer support and customer relationship activities.</td>
</tr>
<tr>
<td>4. Information and communication systems</td>
<td>The maintenance and provision of information and communication systems, including: a) hardware and software b) data processing and database c) maintenance and repair d) web-hosting and other computer-related information activities. These functions can be provided in a separate division or in divisions responsible for other functions.</td>
</tr>
<tr>
<td>5. Administration and management</td>
<td>This function includes: a) strategic and general business management (cross-functional decision-making), including organising work responsibilities b) corporate governance (legal, planning and public relations) c) accounting, bookkeeping, auditing, payments and other financial or insurance activities d) human resources management (training and education, staff recruitment, workplace organisation, provision of temporary personnel, payroll management, health and medical support) e) procurement f) managing external relationships with suppliers, alliances, etc.</td>
</tr>
<tr>
<td>6. Product and business process development</td>
<td>Activities to scope, identify, develop, or adapt products or a firm’s business processes. This function can be undertaken in a systematic fashion or on an ad hoc basis, and be conducted within the firm or obtained from external sources. Responsibility for these activities can lie within a separate division or in divisions responsible for other functions, e.g. production of goods or services.</td>
</tr>
</tbody>
</table>

Oslo Manual, 2018

Page 73

Table 3.1

Functional categories for identifying the type of business process innovations
internet banking

two spaces for each meal

recycling products for packaging

social media or customer services?
The Internet of Things Ecosystem

- Remote
- Command/Bit
- Analysis
- Data Storage
- IoT Devices
- Analytics
- Data
- Gateway
- Internet Network

**Customer Feedbacks**

- GPS apps
- Barcode system

- Reduces risks
- Productivity +
after sale services

Best Roadside Assistance App for your Towing Business

product placement
Changes that are not innovation

- routine changes or updates
- simple capital replacement or extension,
- minor aesthetic changes,
- custom production,
- advertised concept, prototype or model of a product that does not yet exist,
- outputs of creative and professional service firms,

!!! Oslo Manual page 78-80 / Items 4.65-4.77 !!!
Changes that are not innovation

- extend the range of products handled or offered to customers,
- activities of newly created firms,
- mergers or the acquisition of other firms,
- ceasing to use a business process, ceasing to outsource a business process, or withdrawing a product from the market,
- externally determined factor prices,
- corporate or managerial strategy

!!! Oslo Manual page 78-80 / Items 4.65-4.77 !!!
Activities that can undertake in pursuit of innovation

all scientific, technological, organisational, financial and commercial steps which actually lead, or are intended to lead, to the implementation of innovations.

✓ Research and experimental development (R&D) activities
✓ Engineering, design and other creative work activities
✓ Marketing and brand equity activities
✓ IP-related activities
✓ Employee training activities
✓ Software development and database activities
✓ Activities related to the acquisition or lease of tangible assets
✓ Innovation management activities

!!! Oslo Manual page 87-91

Items 4.8 – 4.34 !!!
Questionnaire and background of the field studies
Background of innovation statistics in ESTAT

- **CIS LIGHT**
  - 1993
  - Pilot Study

- **CIS 3**
  - 2002

- **CIS 2006**
  - 2007
  - Third edition

- **CIS 2010**
  - 2011
  - Creativity, skills etc.

- **CIS 2014**
  - 2015
  - Eco innovation

- **CIS 2018**
  - 2019
  - Major changes

- **CIS 2**
  - 1999
  - Time principle

- **CIS 5**
  - 2005
  - Eco innovation

- **CIS 2008**
  - 2009
  - New quest. obstacles

- **CIS 2012**
  - 2013
  - 2017

- **TurkStat first CIS study**
### Questions in CIS 2018 (National example)

#### 2 Strategies and Knowledge Flows

2.1 **During the three years 2016 to 2018, how important were the following strategies to the economic performance of your enterprise?** [STRA]

<table>
<thead>
<tr>
<th>Focus</th>
<th>High (3)</th>
<th>Medium (2)</th>
<th>Low (1)</th>
<th>Not important (0)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on improving your <strong>existing goods or services</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on introducing <strong>new goods or services</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on <strong>low-price</strong> (price leadership)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on <strong>high-quality</strong> (quality leadership)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on a <strong>broad range of goods or services</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on one or a small number of <strong>key goods or services</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on satisfying <strong>established customer groups</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on reaching out to <strong>new customer groups</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on <strong>standardised goods or services</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Focus on <strong>customer-specific solutions</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

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**the effects of the strategies adopted and their relationship with innovation activities**
Questions in CIS 2018 (National example)

2.5 During the three years 2016 to 2018, did your enterprise:

- [ ] Apply for a patent
- [ ] Register an industrial design right
- [ ] Register a trademark
- [ ] Claim a copyright
- [ ] Use trade secrets

Yes

No

1

0

IPR_OUT

IPR_OUT_PAT

IPR_OUT_IDESG

IPR_OUT_TRDM

IPR_OUT_CPR

IPR_OUT_TS

competitive advantage gained by innovation guaranteed with effective protection methods.

Utility model was also asked to respondents in terms of national policy needs.
Questions in CIS 2018 (National example)

3. Innovation

A product innovation is a new or improved good or service that differs significantly from the firm’s previous goods or services and which has been implemented on the market.

Include:
- significant changes to the design of a good
- digital goods or services

Exclude:
- the simple re-sale of new goods and changes of a solely aesthetic nature

3.1 During the three years 2016 to 2018, did your enterprise introduce any: [INNO_PRD]

Yes  No

3.2 In the three years 2016 to 2018, did your enterprise introduce any new or improved products (goods or services) that were:

Not previously offered by any of your competitors?

Identical or very similar to products already offered by your competitors?

Product innovation types

The firms first develop innovations and the followers’ adoption / learning processes
Questions in CIS 2018 (National example)

3.3 Please estimate the percentage of your enterprise’s total turnover\(^1\) in 2018 from products (goods or services) that were, in the three years 2016 to 2018:\(^2\) [TUR_PRD]

<table>
<thead>
<tr>
<th>New or improved products</th>
<th>Unchanged products (or with only minor changes)(^*)</th>
<th>Total turnover in 2018</th>
</tr>
</thead>
<tbody>
<tr>
<td>TUR_PRD_INN = ____%</td>
<td>TUR_PRD_NINN = ____%</td>
<td>= 100%</td>
</tr>
</tbody>
</table>

If possible, separate turnover from new or improved products into products that were:

- Not previously offered by any of your competitors\(^6\)
- Identical or very similar to products already offered by your competitors

\* Includes the resale of new products purchased from other enterprises.

---

3.4 Who developed these product innovations? [DEVE_PRD]

Tick all that apply:
- Your enterprise by itself
- Your enterprise together with other enterprises or organisations\(^*\)
- Your enterprise by adapting or modifying products originally developed by other enterprises or organisations\(^*\)
- Other enterprises or organisations\(^*\)

---

the impact of innovation on enterprise performance

innovation drivers, cooperations and follow on activities
Questions in CIS 2018 (National example)

3.6 During the three years 2016 to 2018, did your enterprise introduce any of the following types of new or improved processes that differ significantly from your previous processes? [INNO_PCS]

Methods for producing goods or providing services (including methods for developing goods or services)
Logistics, delivery or distribution methods
Methods for information processing or communication
Methods for accounting or other administrative operations
Business practices for organising procedures or external relations
Methods of organising work responsibility, decision making or human resource management
Marketing methods for promotion, packaging, pricing, product placement or after sales services

If 'no' to all options go to question 3.9
Otherwise go to question 3.7

3.7 Who developed these process innovations? [DEVE_PCS]

Your enterprise by itself
Your enterprise together with other enterprises or organisations
Your enterprise by adapting or modifying processes originally developed by other enterprises or organisations
Other enterprises or organisations

Business process innovation types

Innovation drivers, cooperations and follow on activities
Questions in CIS 2018 (National example)

3.9 During the three years 2016 to 2018, did your enterprise have any of the following types of innovation activities? (Activities leading to expenditures) [INNA]

- Completed activities on product or process innovation
- Ongoing innovation activities at the end of 2018
- Abandoned innovation activities
- In-house research and development (R&D) activities*
  - if 'yes': did your enterprise perform in-house R&D during the three years 2016 to 2018:
    - Continuously (your enterprise had permanent R&D staff)
    - Occasionally (as needed only)
- Contract-out R&D to other enterprises (include enterprises in your own group) or to public or private research organisations

* For NSIs that use an online survey: For all enterprises: For all enterprises that reply 'yes' to any category in any of the questions 3.1 or 3.6, pre-set the answer to 'yes'.
* Please see the annex for definitions of internal and external R&D.

Innovation activities can result in an innovation be ongoing, postponed or abandoned.
### Questions in CIS 2018 (National example)

#### 3.10 How much did your enterprise spend on innovation and research and development (R&D) in 2018? [EXP_INNO]

- Please note that question 3.10 refers, exceptionally, **only to the year 2018**, not the three year period 2016 to 2018.
- Please tick 'none' for all categories if you enterprise did not have any expenditure on innovation and/or R&D in 2018.

**Please estimate if you lack precise accounting data**

| R&D performed in-house (include current expenditures including labour costs and capital expenditures (buildings, machinery, equipment, software etc.) specifically for R&D) | EXP_INNO_RND_IH |
| R&D contracted out to others (including enterprises in own enterprise group) | EXP_INNO_RND_CONTR_OUT |
| All other innovation expenditures* (i.e. excluding R&D) | EXP_INNO_INN_XRNK |
| Of which: Own personnel working on innovation | EXP_INNO_INN_XRNK_OWNP |
| Services, materials, supplies purchased from others for innovation | EXP_INNO_INN_XRNK_SMSP |
| Capital goods for innovation (acquisition of machinery, equipment, software, IPRs, buildings etc.) | EXP_INNO_INN_XRNK_CGO |

the expenditures for R&D and other innovation activities
Questions in CIS 2018 (National example)

3.12 During the three years from 2016 to 2018, did your enterprise try to obtain the following types of funding? If funding was obtained successfully, was this funding used for R&D or other innovation activities?

Try to obtain funding

Yes, successfully obtained some funding of this type  
Tried, but not successfully  
No

If your enterprise obtained funding, was this partly or fully used for R&D or other innovation activities?

Yes  
No

Equity finance
(finance provided in exchange for a share in the ownership of the enterprise)

- FUND_EQUIT_SUCC
- FUND_EQUIT_NSUC

Debt finance
(finance that the enterprise must repay)

- FUND_DEBT_SUCC
- FUND_DEBT_NSUC

Important outputs for the policy makers!!!

enterprises try to obtain funding?

if yes, they use into the R&D or innovation activities?
**Questions in CIS 2018 (National example)**

3.13 During the three years from 2016 to 2018, did your enterprise receive any **public financial support** from the following levels of government? [FUND]

Include financial support via grants, subsidised loans, and loan guarantees. Exclude revenues from public sector* procurement contracts.

If your enterprise received financial support; was part of this used for R&D or other innovation activities?

<table>
<thead>
<tr>
<th>Local or regional authorities*</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUND_AUT_LOC_REG</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>FUND_AUT_LOC_REG_RNDINN</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>National government*</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUND_GOV_CTL</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>FUND_GOV_CTL_RNDINN</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>EU Horizon 2020 Programme for Research and Innovation</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUND_EU_HP2020</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>FUND_EU_HP2020_RNDINN</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other financial support from a European Union institution*</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>FUND_EU_OTH</td>
<td>☐</td>
<td>☑</td>
</tr>
<tr>
<td>FUND_EU_OTH_RNDINN</td>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

* Include financial support via grants, subsidised loans, and loan guarantees. Exclude financing of activities under contract by the public sector*. The public sector includes government owned organisations such as local, regional and national administrations and agencies, schools, hospitals, and government providers of services such as security, transport, housing, energy, etc.

3.14 During the three years from 2016 to 2018, did your enterprise use **tax incentives or allowances** for the following purposes? [TAX_CRED]

**Tax credits or allowances for R&D or other innovation activities**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

**Tax credits or allowances for all other types of activities**

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>☐</td>
<td>☑</td>
</tr>
</tbody>
</table>

**Important outputs for the policy makers!!!**

- **public financial support**
- **tax incentives and allowances**
Questions in CIS 2018 (National example)

3.15 During the three years 2016 to 2018, did your enterprise co-operate* with other enterprises or organisations? (COOP)

- a) On R&D
- b) On other innovation activities (excluding R&D)
- c) On any other business activities

* Co-operation is active participation with other enterprises or organisations. Partners do not need to commercially benefit. Exclude pure contracting out of work with no active co-operation.

If 'yes' to either option a) or b), go to question 3.16
Otherwise go to question 3.17

the cooperation status and types of partners in terms of national or global level
The cooperations are crucial for this survey!

✓ innovation circles and team work in innovation projects,
✓ stimulating informal contacts between employees,
✓ joint development of innovation strategies across functional areas exchanging innovation ideas openly across the firm,
✓ mutual support across functional areas to address problems in innovation projects,
✓ regular meetings of heads of functional areas to discuss innovation issues,
✓ mechanisms for iterative and interactive project development and delivery,
✓ temporary involvement in innovation projects of personnel from different functional areas
Questions in CIS 2018 (National example)

3.18 During the three years 2016 to 2018, how important were the following factors in hampering your enterprises’ decision to start innovation activities*, or its execution of innovation activities*? [HAMP]

<table>
<thead>
<tr>
<th>Degree of importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
</tr>
<tr>
<td>3</td>
</tr>
</tbody>
</table>

- Lack of internal finance for innovation
- Lack of credit or private equity
- Difficulties in obtaining public grants or subsidies
- Costs too high
- Lack of skilled employees within your enterprise
- Lack of collaboration partners
- Lack of access to external knowledge
- Uncertain market demand for your ideas
- Too much competition in your market
- Different priorities within your enterprise

internal or external factors that hamper or encourages innovation efforts
Questions in CIS 2018 (National example)

4.1 What was the average number of persons employed* by your enterprise in 2016 and 2018? [EMP]

*Total number of persons (headcount) who work in the enterprise (inclusive of working proprietors, partners working regularly in the unit and unpaid family workers), as well as persons who work outside the enterprise’s premises and are paid by it (e.g. sales representatives, delivery personnel, repair and maintenance teams). It excludes manpower supplied to the enterprise by other enterprises, persons carrying out repair and maintenance work in the enterprise on behalf of other enterprises, as well as those on compulsory military service.

4.2 Approximately what percentage of the persons employed in your enterprise in 2018 had a tertiary degree? [EMPUD]

Tick only one

4.3 What was your enterprise’s total turnover* in 2016 and 2018? [TUR]

Compiled from administrative sources

human resource competence of the enterprise

Compiled from administrative sources
Methodological base and survey process in TurkStat
Methodology

Geographical coverage: All enterprises in Turkey

Sectoral coverage: Core activities recommended in the manual

- Mining and quarrying (NACE B: 05-09)
- Manufacturing (NACE C: 10-33)
- Electricity, gas steam and air conditioning supply (NACE D: 35)
- Water supply; sewerage, waste management and remediation activities (NACE E: 36-39)
- Wholesale trade, except of motor vehicles and motorcycles (NACE 46)
- Transportation and storage (NACE H: 49-53)
- Information and communication (NACE J: 58-63)
- Financial and insurance activities (NACE K: 64-66)
- Architectural and engineering activities (NACE 71)
- Scientific research and development (NACE 72)
- Advertising and market research (NACE 73)
Methodology

Data Collection Period: Biennial data collection for 3 years period

Data collection Method: Web based questionnaire (2015 and onwards)

Sampling unit: Enterprise

Sampling frame: TurkStat Business registers system

Sampling method: Stratified random sampling

- Economic activities
- Size class (10-49, 50-249), (0-9: Optional)
- Census: 250+

Classifications: NACE Rev. 2/ ISCED, 2011

All the methodological approach derives from Oslo Manual!!!
Data collection process

In coordination with the departments:
✓ Metadata and Register System
✓ Methodology
✓ Data Collection
✓ Software
✓ Annual Business
✓ Regional offices

Questionnaire
- Methodology
- User needs
- Standardisation
- Instructions for interviewers

Sampling & Framework
- Business register system
- ID number assignment
- Information letter

Data collection and analysis
- Design
- Consistency checks
- Definitions & examples
- Training
- Tests
- Y2Y checks
- Administrative records
- Comparison with R&D survey

Data entry app
- Eurostat (Reg. 995/2012)
- OECD

National dissemination
- Press release
- Statistical tables
- Data research center

Quality reports
- National quality report
- Eurostat Metadata quality report

International dissemination
Recommendations and key aspects
Recommendations and key aspects - 1

✓ the survey should be filled in by authoritative respondents,

✓ The choice of questions should be made after consultations,

✓ all questions need to be carefully adapted and translated,

✓ Instructions should be short, clear and easy to find,

✓ consistency and range edits to aid the respondent is crucial,
Recommendations and key aspects – 2

✓ pilot tests for questionnaire and data entry apps before collection,

✓ A pre-contact may be a useful,

✓ interviewer manuals and training,

✓ a preliminary set of edits,

✓ Response rates should be monitored,
Recommendations and key aspects – 3

✓ Paradata may be used to assess the effectiveness and cost efficiency,

✓ a linking key that allows for the datasets to be combined,

✓ data from innovation surveys should be compared to previous cycles,

✓ data should be compared with other comparable data sources,

✓ NSOs should provide indicators of data quality for the published aggregates,
Web based application of TurkStat
Standard perspective

Definitions beyond the questions (nearly all the key and controversial ones)

User friendly pop-ups

Hide & show results for filter questions
Standard perspective

Examples for critical parts

Auto sum structure with read-only view

Simultaneous warnings that affects flow and cross checks in questionnaire
Standard perspective

Auto filled tables to help users to distribute detailed breakdowns
Analyze perspective

Chance to observe each enterprise by entering the registration number

Control and analyze process for central organization and regional offices. Authorized for specifics dates for offices, reporting option for regional and central bodies of TurkStat.
Detailed explanations for regional offices about potential / soft and hard errors
Dissemination
Press release and statistical tables for CIS 2018 results

International Organisations (Eurostat/OECD)

✓ CIS Fast Track Data

Table 1 (PRD innovation)

Table 2 (BPCS innovation)

Table 3 (INN innovation)

Table 4 (Coop)

Table 5 (Non-R&D exp)

Table 6 (Turn new to frm mkt)

Table 7 (Strategies)
International Organisations (Eurostat/OECD)

✓ Eurostat – OECD Data Transmission
International Organisations (Eurostat/OECD)

✓ CIS Innovation Profiles

<table>
<thead>
<tr>
<th>Country</th>
<th>Innovators</th>
<th>Non-innovators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>with substantial own innovation capacities</td>
<td>with own innovation activities and/or potential</td>
</tr>
<tr>
<td></td>
<td>with market novelties</td>
<td>with ongoing or abandoned innovation activity</td>
</tr>
<tr>
<td></td>
<td>without market novelties</td>
<td>with innovation potential</td>
</tr>
<tr>
<td></td>
<td>business process innovators</td>
<td>Without ongoing or abandoned innovation activity and without potential</td>
</tr>
<tr>
<td>TURKEY</td>
<td>with R&amp;D</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>without R&amp;D</td>
<td>Total</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>with R&amp;D</td>
</tr>
<tr>
<td></td>
<td>without R&amp;D</td>
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</tr>
</tbody>
</table>
“Success on the civilization path depends on innovation.”

MUSTAFA KEMAL ATATÜRK
Thank you for your attention...

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Any questions / remarks???