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Research report
IO1 and IO2

March 2022

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Resumé of results

“Employees must dare to embark on digital technologies. If you have the will and the interest you will acquire the necessary competencies.” (Manager)

Level of digital competencies of health care professionals and managers:

- Very similar across Italy, Slovenia, Catalonia and Demark.
- High self-assessed user skills, communication through digital tools and data security
- Low on areas related to mind-set aimed at keeping up to date with emerging technologies, implementing them and awareness of one shortcomings. Here the manages rated highest.

Attitudes and mind-set:

- Digital competencies and use of new technologies not top of mind.
- Many of the same problems related to digital technologies are experiences across the four countries:
  - More administration and registration and thereby time away from the patient.
  - The changes are seen as a burden.
  - Fear and reluctance to replace contact with patent with digital technologies.
- Positive effects of digital technologies experiences across most of the four countries (especially Slovenia and Italy do not experience all the advantages):
  - Faster and easier to access up-dated information do to uniform and centralized digital documentation.
  - Share information across providers through shared systems. Better overview.
  - Creates optimization of time for health care professionals and faster patient care of improved quality. Higher data security.

Organisation:

- Generally positive attitude among managements towards digital solutions.

Problems related to implementation of digital technologies in the four countries (least experienced in Denmark):

- Inadequate training (lack of time and ressources). Generally no clear structures for training of HCPs. Self-training and learning by doing/peer support. Training generally designes locally by ‘super users’ or IT staff.
- Organizational structure that does not facilitate implementation.
- Lack of adequate technological equipment and sufficient IT-support.

Potentials for improvement of digital competencies (similar across countries):

- Change of attitude and mind-set in relation to technology towards more open-mindedness, interest, curiosity, patience and courage.
- More reflection on value of technology and awareness of ones shortcomings.
- Skills to use existing digital tools and further training in communicating digitally and training colleagues and patients in using digital solutions.
- Technological understanding and trouble shooting.

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Aim of the analysis

Intellectual output IO1

1. Assessment of level of digital competencies of health care professionals (HCPs) and helth care managers (HCMs)
2. Digital solutions most frequently used and considered most important
3. Perceptions on digital solutions and digitization
4. Existing framework and practices of introduction and training of digital competencies - including existing ICT support structure.
5. Potential areas for improvement of digital competencies among HCPs and HCMs
6. Decisive elements for implementation of digital solutions

The actual digital competencies of health care professionals

Mind-set, values and attitudes related to digitization

Intellectual output IO2

- Organisational readiness for digitization, including strategies for digitization and equipment/organisational structures for adaption of digital technologies.
- Organisational attitude towards digitization and management support in using digital technologies.
- Description of organizational factors that pose barriers and facilitators to the digitization and implementation of educational programme

The organisational readiness for digitization

Timeline IO1 and IO2

Milestones

08.06
Research guides for IO1 and IO2 prepared for pilot test/qualification: Templates, survey, interview guides etc.

08.08
Pilot test done and results translated to English

08.09
Research material finalized so partners are able to start collecting data

01.10
All partners have translated survey questions into local language.

Qualitative data collection

Quantitative data collection

06.01
Data collected and analyzed in own country – translated to English

14.02
Preliminary analysis for IO1 and IO2 finalized

24.03
TM3 meeting. Presentation of research report. Determine direction of project (IO3)

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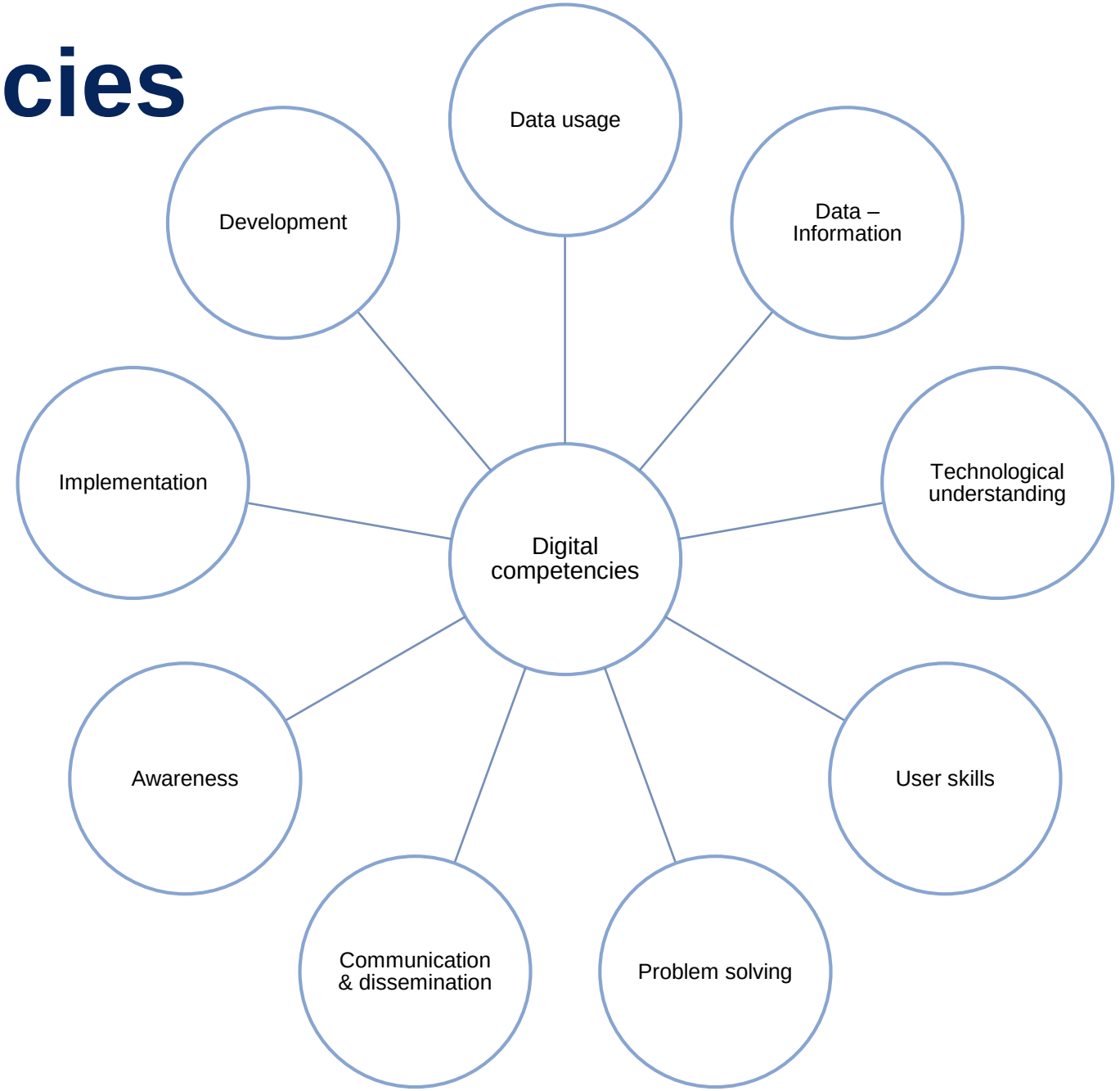
Digital competencies



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Digital competencies - definitions

The **ability to combine digital technologies, knowledge, skills and attitudes appropriate to the context.** Digital competence is therefore divided into the following learning domains:

1. **Instrumental skills** to use digital tools and media.
2. **Knowledge, theories and principles** related to technology.
3. **Attitudes** towards strategic use, openness, critical understanding, creativity, responsibility and independence.

The DELIVER project takes a broader approach:

- Not just the skill to work with a specific ICT or digital healthcare solution
- Also **an awareness of the development in digital technologies, a readiness to adapt, the necessary skills to implement and lastly, the ability to communicate and disseminate knowledge of digital technology.**

Methodology - mixed methods

Quantitative approach

- Only IO1, self-assessment survey
- Survey with a pilot
- Translated into three languages
- **395 respondents** in total across three countries (Denmark, Italy & Slovenia)

Qualitative approach

- Merged questions from IO1 and IO2
- Interview guide with a pilot
- Individual and focus group interviews
- **74 respondents** across four countries + 4 ICT specialists (Denmark, Italy, Catalonia & Slovenia)

Limitations of study

Quantitative limitations:

- Self-assessment survey
- Some healthcare professions are not equally represented or missing across all samples
- Majority of sample consist of nurses
- No survey data from Catalonia

Qualitative limitations:

- Some healthcare professions are not equally represented or missing in sample
- Big variation in ICT responsibility of respondents between countries

SAMPLE

An overview

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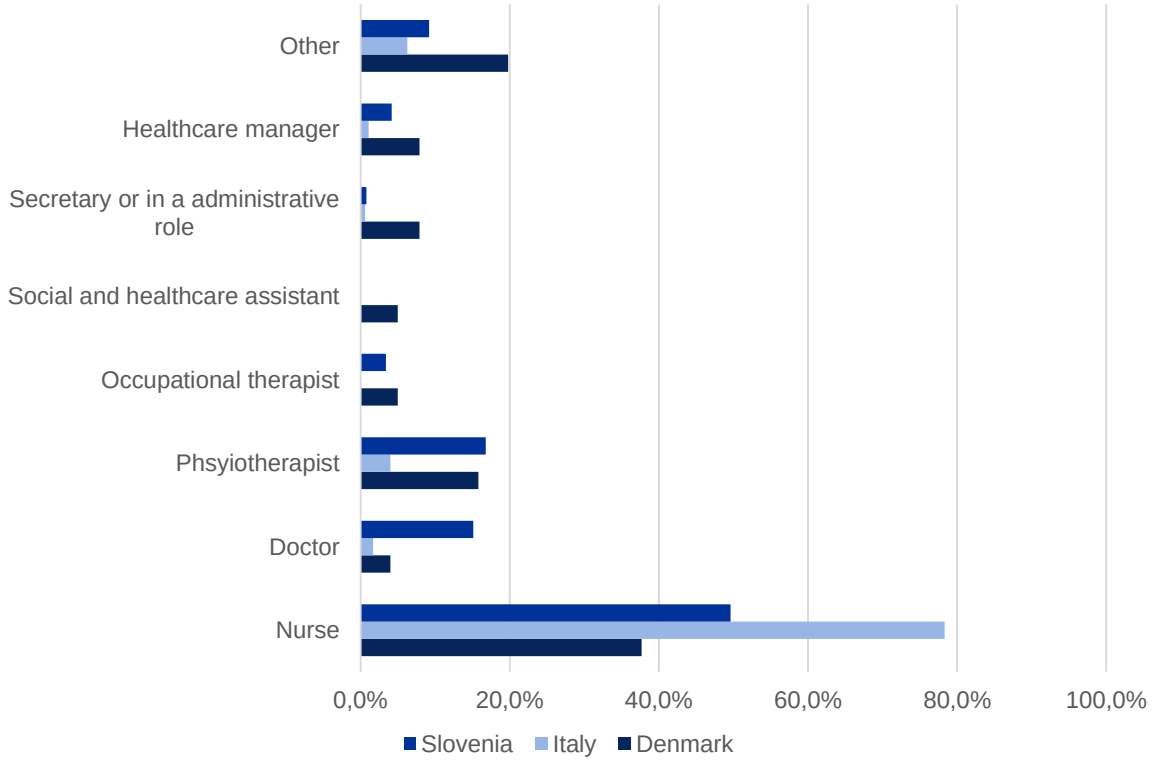
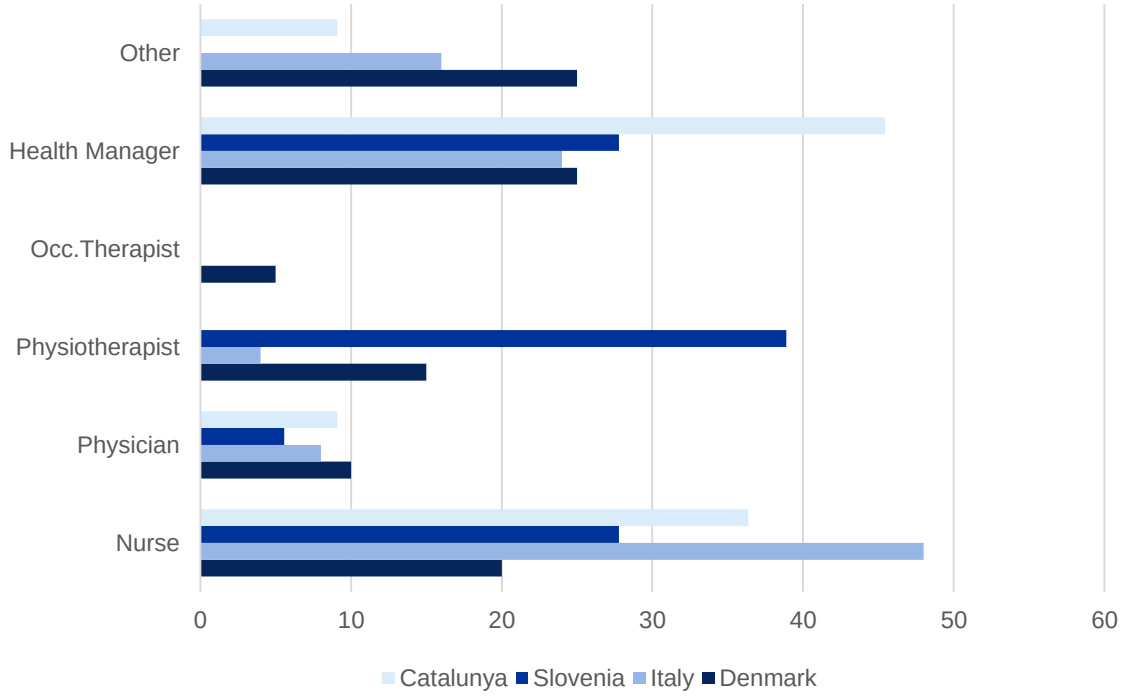
Professions of respondents

Quantitative survey - Profession in %



Qualitative interviews - Profession in %



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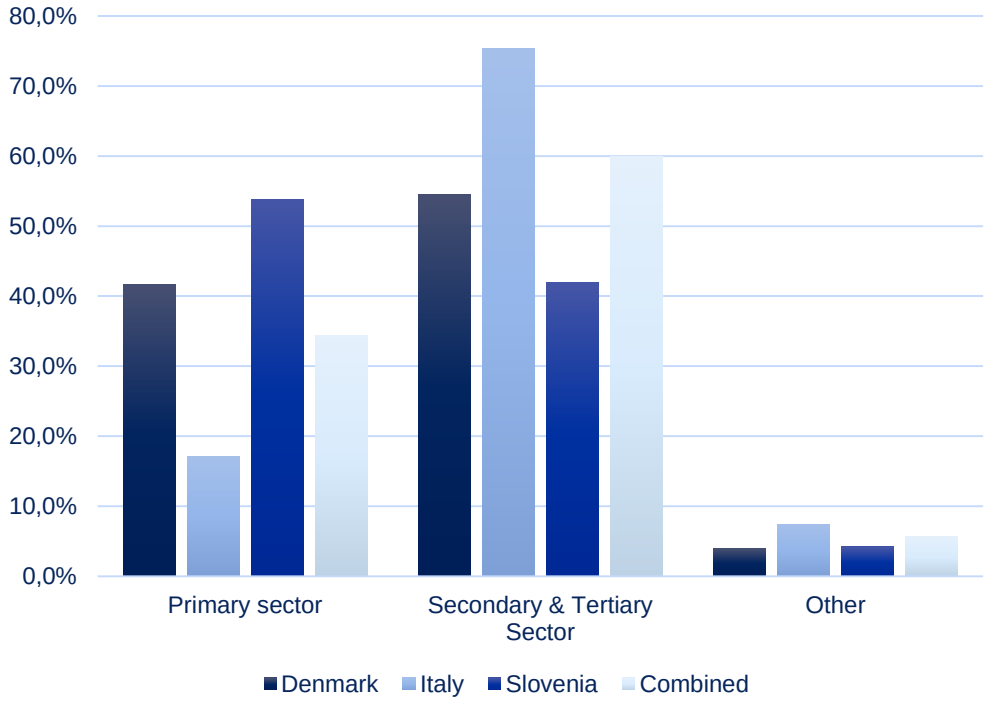
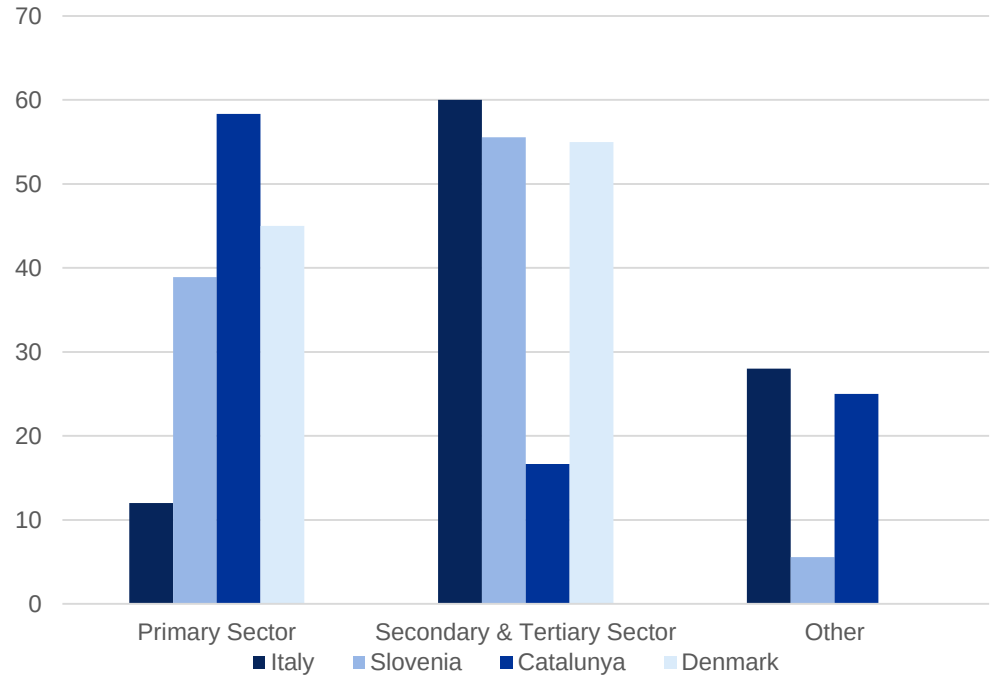
Work sector of respondents

Quantitative survey - sector respondents work in - %



Qualitative interviews – sector respondents work in - %



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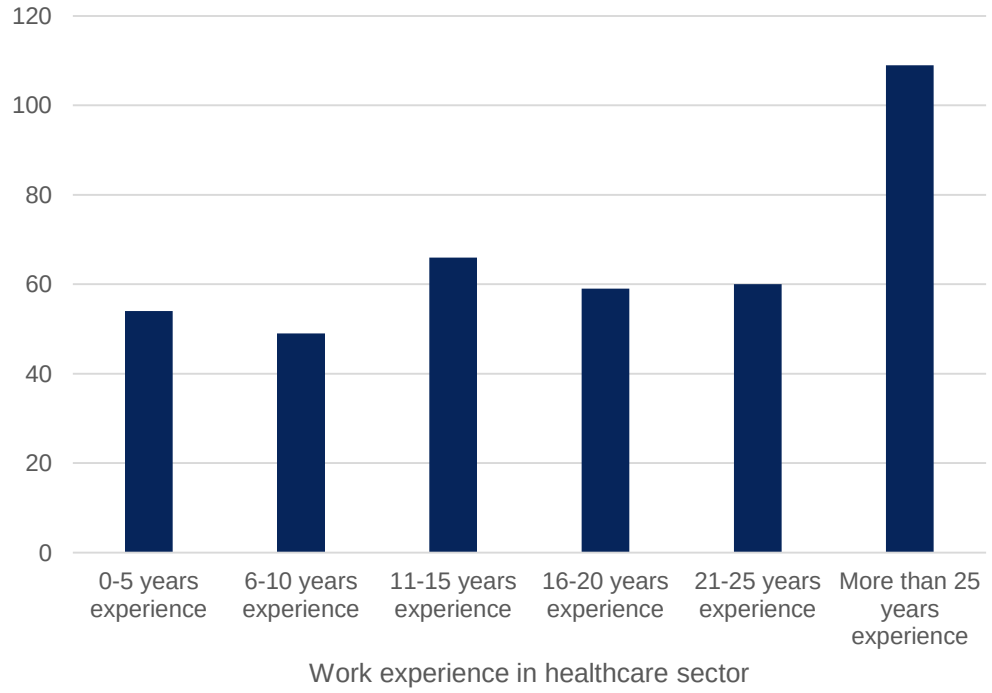
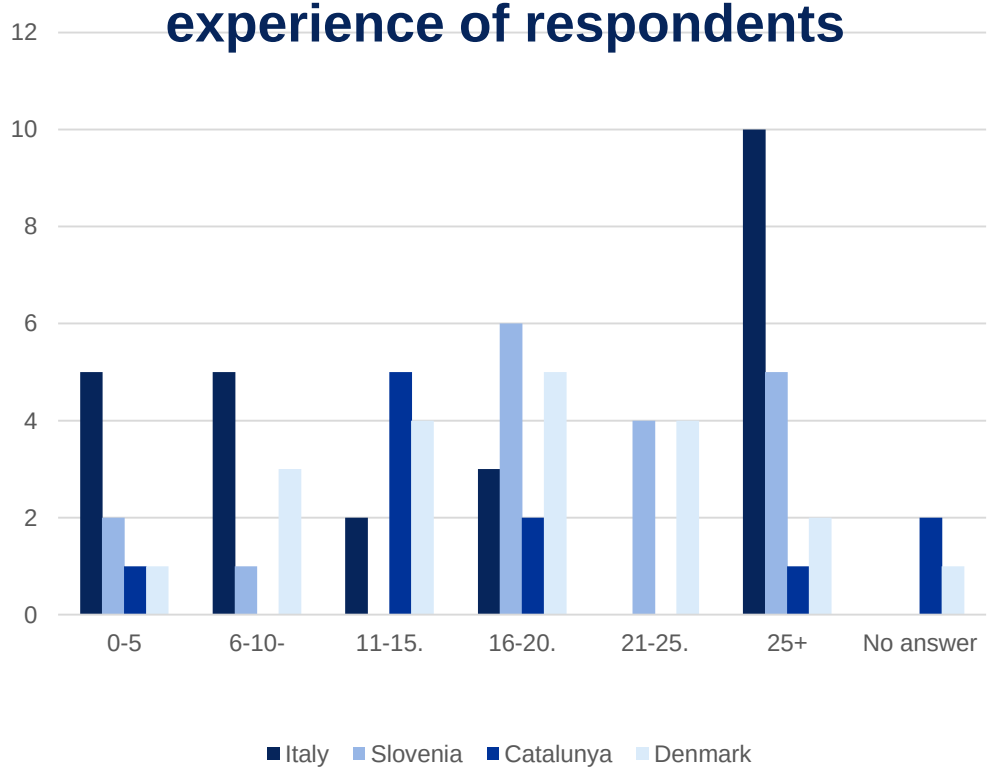
Work experience of respondents in health care sector

Quantitative survey - work experience of respondents



Qualitative interviews - work experience of respondents



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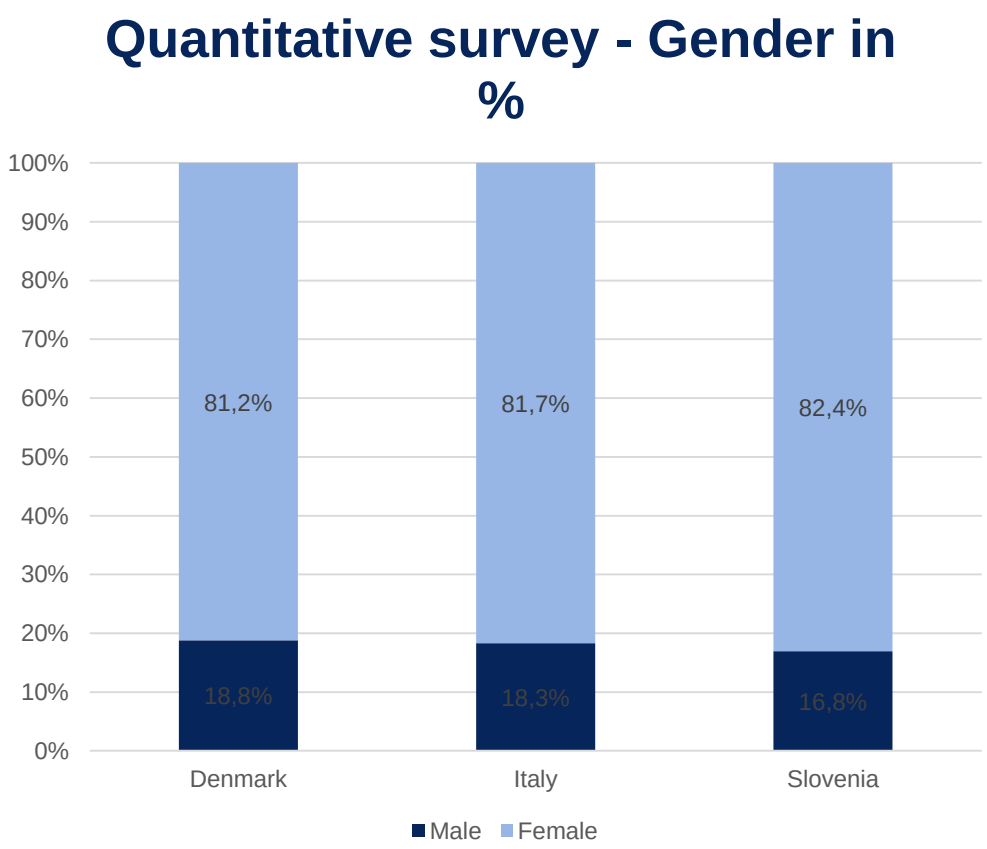
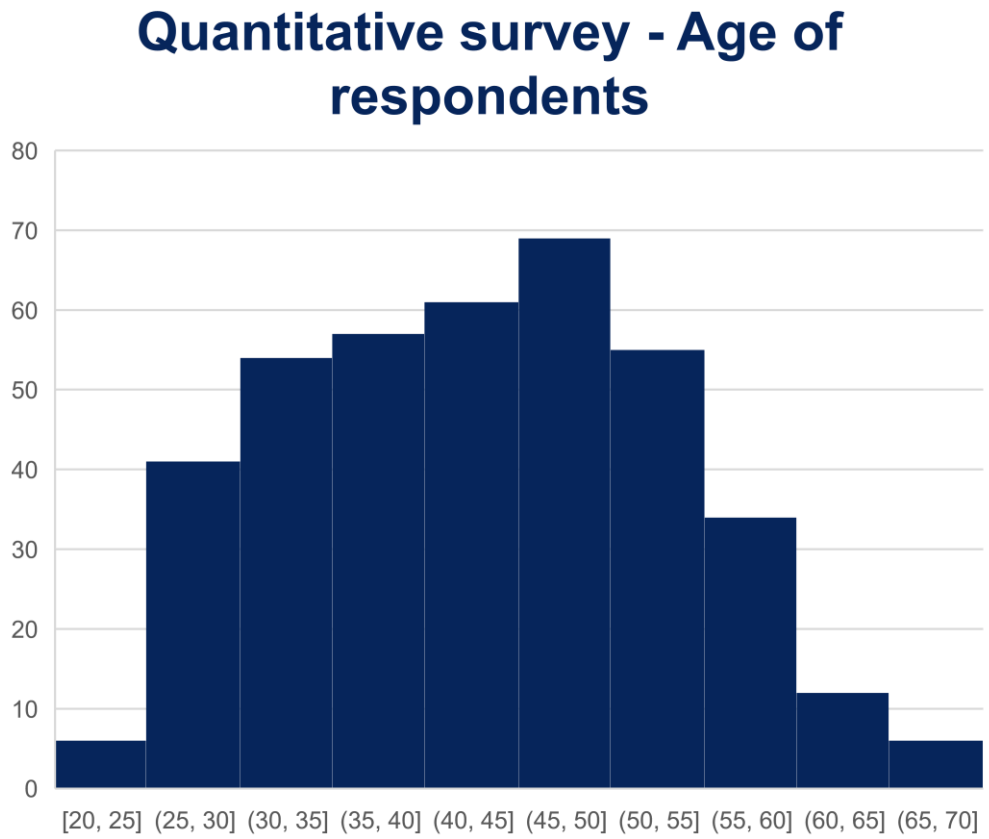
Demography quantitative survey





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RESULTS

ANALYSIS ACROSS METHODS

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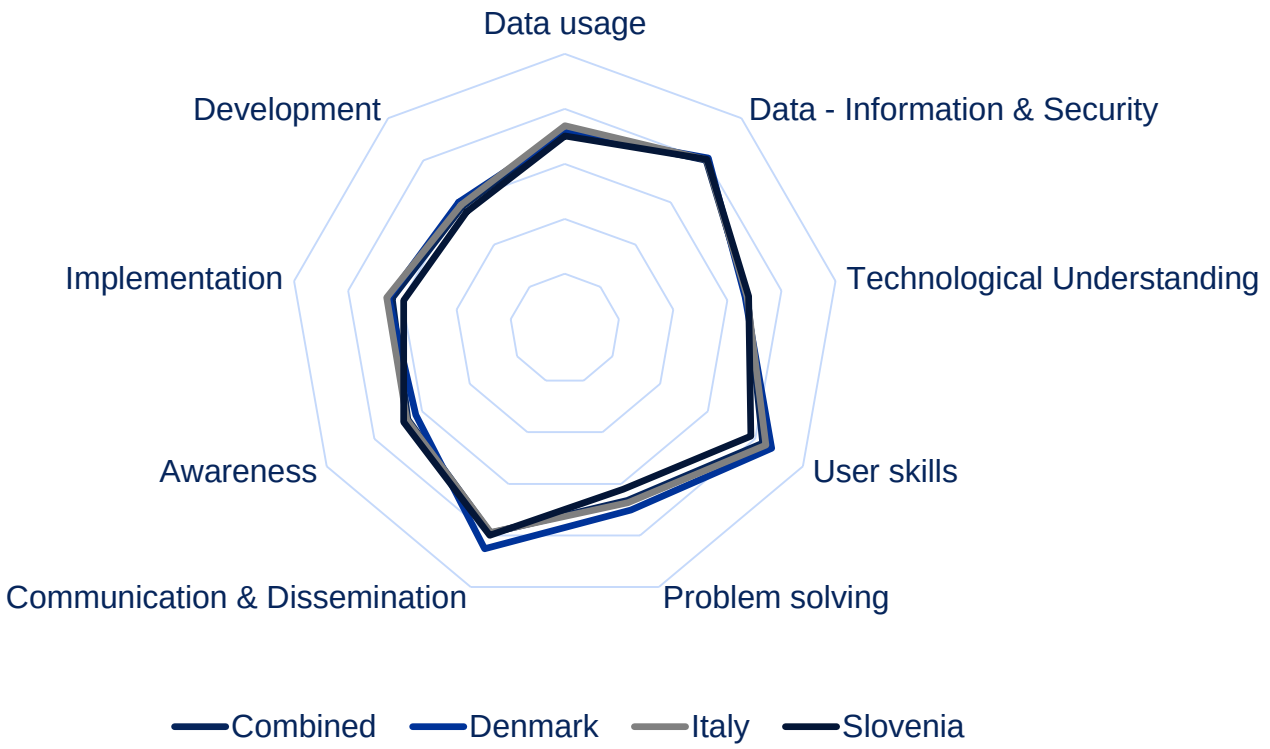
Result IO1 #1

Level of digital competencies of HCPs and HCMs

Digital competencies – Countries



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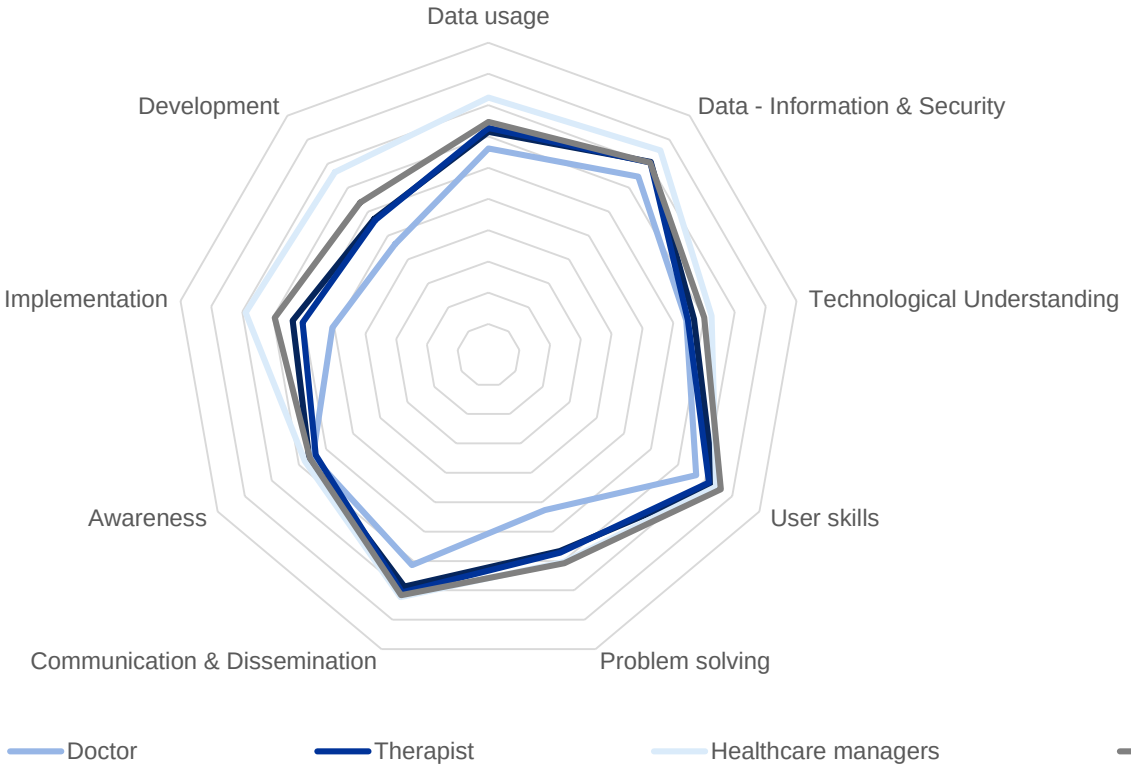
Result IO1 #1

Level of digital competencies of HCPs and HCMs

Digital competencies - Professions



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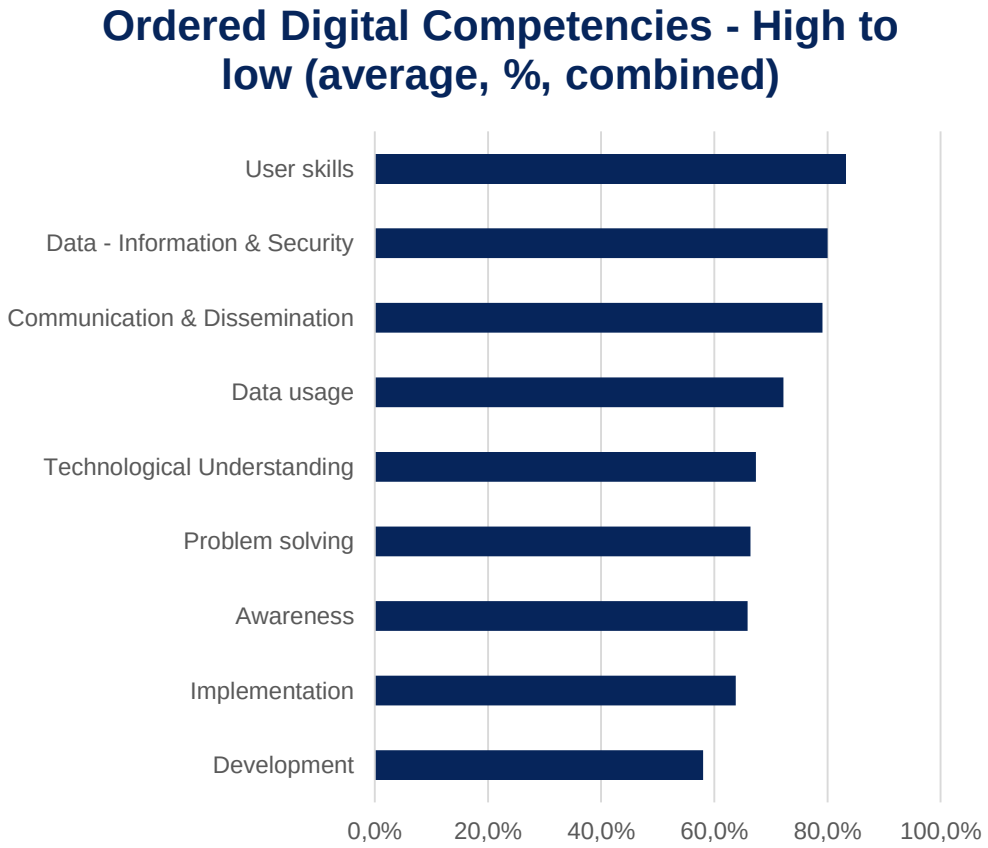
Result IO1 #1

Level of digital competencies of HCPs and HCMs

Lower digital competencies in:

- Awareness
- Implementation
- Development

The areas are related to a mindset aimed at keeping up to date with emerging digital technologies, implementing them and awareness of ones shortcomings.



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Result IO1 #2

Perceptions on negative effects of digital solutions and digitization

Many of the same problems related to digital technologies are experienced across the four countries but there are also significant differences:

- **More administration and registration** and has taken some **time away from the patient**.
- Creates **difficulties and resistance** as many HPCs experience a bigger burden with new technologies, changing workflows etc.

Problems in the implementation of digital technologies (identified in all four countries)**:**

- The majority of HCPs do **not exploit all the potentials** of their digital systems.
- **Inadequate training** both in terms of lack of time and resources. Especially a problem for older generations.
- **Mind-set** of the HCPs, eg. fear of new technologies, and reluctance to replace close contact with the patient with digital technologies.
- **Organizational structures** that do not facilitate implementation.

Result IO1 #2 (cont'd)

Perceptions on positive effects of digital solutions and digitization

Most significant advantages:

- **Faster and easier access to up-dated information** due to uniform and centralized digital documentation
- Ability to **share information across providers** through shared systems and integrate data for a **better overview**

These advantages create:

- **Optimization of time for HPCs** and **faster patient care of improved quality** and with a **higher data security**.

Not all countries experience all of the advantages though.

Other advantages:

- **Agile, personalized and accessible communication**
- **Order, transparency** as well as **improved legal compliance** (Slovenia).
- **Systematic collection of data** accessible for research.
- **Automation of routine tasks** for smarter use of resources and less human mistakes (Denmark).

"I feel more competent in managing my unit"
(Manager, Catalonia)

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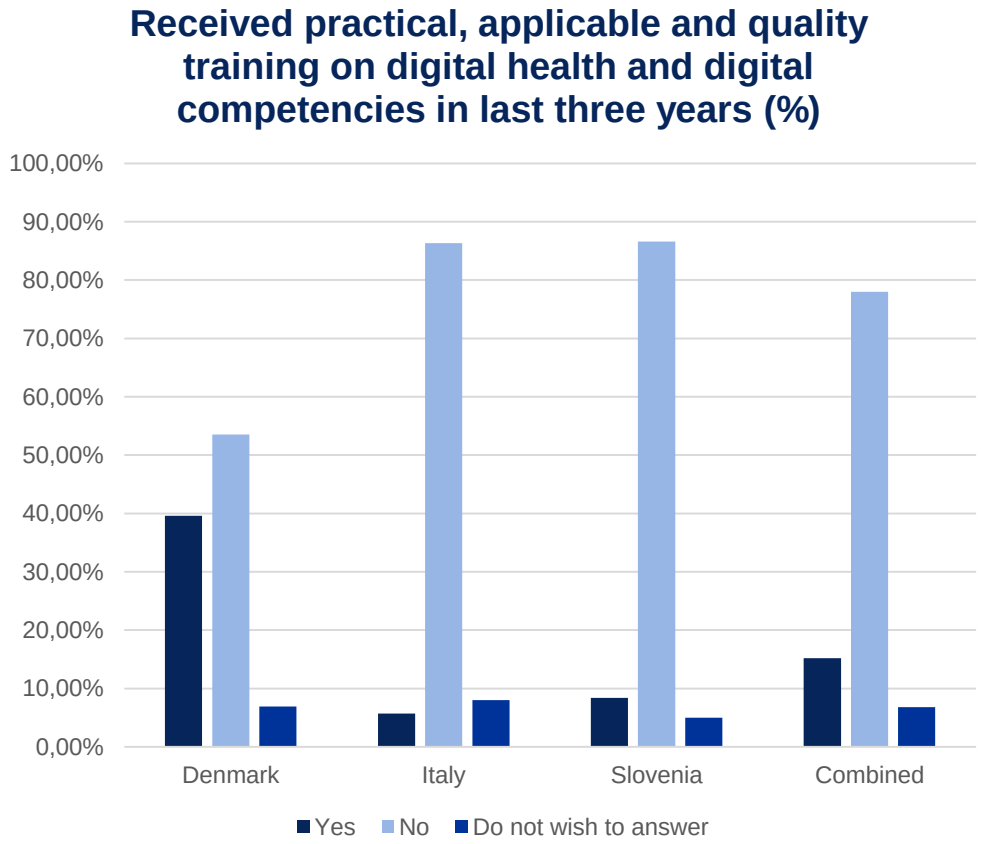
Result IO1 #3

Training of digital competencies

- Generally **no clear structures for training** of HPCs: **Self-training** and learning by doing, often with peer support most common.
- Training generally **designed internally/locally** either by 'super users' or IT staff.
- Training materials often consist of **online training, videoconferences, guides and other materials developed locally** or from eg. the provider of the solution.
- Training considered **inadequate** (lack of time and resources). Least significant in Denmark.
- Wish for **ongoing online and physical training and time to practice**.



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Result IO1 #4

Potential areas for improvement of digital competencies among HCPs and HCMs

Attitude and mind-set

- Change of mind-set and ways of thinking seen as important most important factors in relation to the use of digital technologies across the countries:
  - Open-mindedness, interest, curiosity, patience and courage.
  - Ability to reflect on the value of digital solutions.
  - Keeping up to date with emerging digital technologies, implementing them and awareness of ones shortcomings.
- Age an important factor.

"Employees must dare to embark on digital technologies.
If you have the will and the interest you will acquire the necessary competencies."
(Manager, Denmark)

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Result IO1 #4 (cont'd)

Potential areas for improvement of digital competencies among HCPs and HCMs

User skills

- Using existing digital tools (especially digital health record and other digital information systems).

Communication

- Respondents generally have high scores on communication and dissemination. But interviews indicate a need for further training in communicating digitally.
- Training/education of colleagues and patients in using digital solutions.
- Skills for production of digital content.

Technological understanding and the ability to trouble shoot

"Upskilling digital competencies is necessary now, but it will be even more necessary in the near future as we are constantly collecting more data to build insights and getting even more supported by digital tools."
(Catalonia)

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Result IO2 #1

Organisational readiness for digitization

"We need to overcome the dualisms between digital and paper, digital and analogue..."
Italy

Digital strategy is in place but not every HCP and HCM is familiar with it, since it is not in their scope of responsibilities.

There is no unified strategy for digitization:

- Different scope of obligatory digital tools in different countries and in different levels of health care (primary, secundary, tertiary)
- Not every digital solution is developped on the national level: sometimes health care organisations are left to themselves to develop an appropriate digital tool

Organisational readiness for digitalisation depends on:

- **The country**: in Denmark and Catalonia health care institutions are better equipped with digital technology than in Slovenia and Italy;
- **The sector:** in Italy and Slovenia private health care facilities are far better equipped than public
- **The department**: inside public sector some departments are better digitalised than others: Covid-19 departments (Slovenia), oncology or neurosurgery (Italy). The rest of the departments are faced with lack of equipment or old equipment and not updated in the software.
- **The mindset**
- **Implementation strategy**

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Result IO2 #2

Organisational attitude towards digitization and management support in using digital technologies

- **Overall attitude** of the management towards digitalisation in health care institution is **positive**.
- In many organisations, there are **difficulties due to budgets** (the difficulty of replacing old computers and providing new tools and work programmes to meet the needs of HCPs).
- Many workers, especially older ones, often find it difficult to use the computers and programmes and are not given support by experienced staff.
- **Confidentiality** and privacy of the data is a big concern of HPCs.
- **Pandemic** brought different dynamics of work and speeded up some digitization processes in health care institutuions that would otherwise take more time
- **Problems related to staff** in implementing digital transformnation (number of people and their qualifications) in some countries: Italy, Slovenia

"The employer is already in favour of change. But most of the time the problem is the software itself.... it's the software developer's responsibility. And that's a big expense. "
Slovenia

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Result IO2 #3

Key barriers to digitization and implementation of educational programme

- Resistance to change
- Lack of digital skills (often by senior staff, sometimes by HCM)
- Lack of training
- Lack of equipment and other resources (nurses, educators, etc)

But also:

- Patients‘ inability to use digital technology (older patients, primary level)
- Lack of unified digital solutions at the national level
- Different digital support for different HC professions (hierarchy)
- Lack of sistematic planing and organisation of the digital transformation
- Outdated structure of the available information systems (reflecting outdated methods and logic) in Italy
- “Immature” systems (inflexible structures and rules)

Result IO2 #3

Key facilitators to digitization and implementation of educational programme

- Usefulness, easy to use
- Organization’s digital culture
- Sufficient time for training and time and opportunity to try out and become confident with new technology

Keep in mind the importance of:

- Easily accessible technical equipment that is continuously updated
- The development of simple, intuitive programmes with attractive interfaces, built around the needs of professionals
- Implementation of tablets for real-time data entry
- Organisation‘s digital culture: HCMs put priority to digital technology, share confidence in digital transition and allocate enough resources (time, money, IT help)
- Motivation of people; cooperation between all levels of healthcare

CONCLUSION

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Conclusion

- Digital skills appear very similar across countries and among professionals.
- Lowest competencies in the areas of implementation and development of digital solutions and awareness of own shortcomings.
- High user skills, skills for communicating and disseminating and skills related to data security
- Positive mindset and attitude towards digitization is considered the most important ‘competency’ and enabler.
- Generally positive attitude among managements toward digital solutions.

The needs are quite similar across the 4 countries and almost 500 health care professionals and managers:

- Request for better training and abilities to practice.
- Focus must be on mind-set:
  - The role of management and organization in facilitating WHY digital technologies make sense
  - and to create better conditions for getting to know new technologies and to reflect about daily use. Training is paramount in order to see and acknowledge their value

These are the important for the health care professionals to feel competent and be able to work efficiently in a more digitized health care sector adapted for the digital transformation.

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