e-Skills for Health Professionals

A competence based approach.

Linda Keane

SEPEN Webinar- 5th December, 2019

Cumann Ríomheolais Sláinte
Healthcare Informatics Society of Ireland

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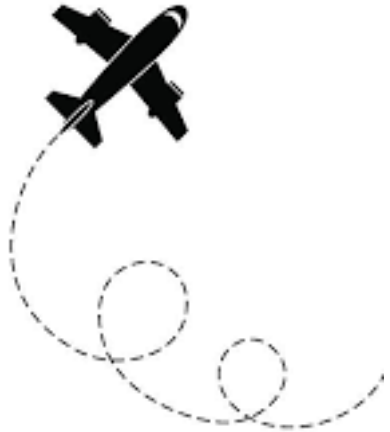
Task 6.3 Lead

eHAction

www.ehaction.eu

“You can have the most technologically advanced device in the world, but if you don’t know how to operate it, it will be as useful as a jumbo-jet without a pilot.”

European Health Parliament ‘Digital Skills for Health Professionals’.



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“After 2020 90% of jobs will require digital skills”

EU Commissioner for the Digital Economy, Mariya Gabriel.

Are Health Professionals prepared?

- Digital Skills for Health Professionals Committee of the European Health Parliament surveyed over 200 health professionals about their experience with digital health solutions in 2016.
- **A large majority reported to have received no training, or insufficient training, in digital health technology.**
- The Committee considered digital literacy among health professionals paramount for the successful, effective and ethical implementation of digital solutions in healthcare.
- And recommended a joint action on digital skills for health professionals.

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Digital Health - a gap in medical education

The Medical Students' Perspective

Lina Katharina MOSCH (Berlin)
European Health Policy Director
European Medical Students' Association (EMSA)
- Association Européenne des Étudiants en Médecine
www.emsa-europe.eu

The survey

Cross sectional online survey

459 polling returns

- **38** countries
  1. Germany (n = 134)
  2. Portugal (n = 49)
  3. Turkey (n = 39)
- Even distribution between **study years 1-6**
- Main age group: **18 - 24 years** (n = 344, 76%)

EMSA Survey Results

- Majority answered positively about the role of mHealth, telehealth and Big Data in medicine in the future.
- **40%** agree or strongly agree on feeling prepared for working in a digitized healthcare system.
- **53%** of medical students evaluate their eHealth skills as poor or very poor
- **85%** agree or strongly agree to eHealth being more implemented in the medical curriculum.

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The gap:

Medical students' **positive attitude** towards digital technologies

Lack of practical training and **eHealth literacy**

Health Professionals, it's time to upgrade your (e)skills!

"Health Professionals are crucial to the wider deployment of eHealth. First, they are the primary users of eHealth. Plus, they also accompany patients in using appropriately these technologies, providing reassurance. Supporting digital skills of the health workforce is all the more needed in the view of the constant changing nature of healthcare systems and healthcare delivery."

eHealth Stakeholder Group, 2019

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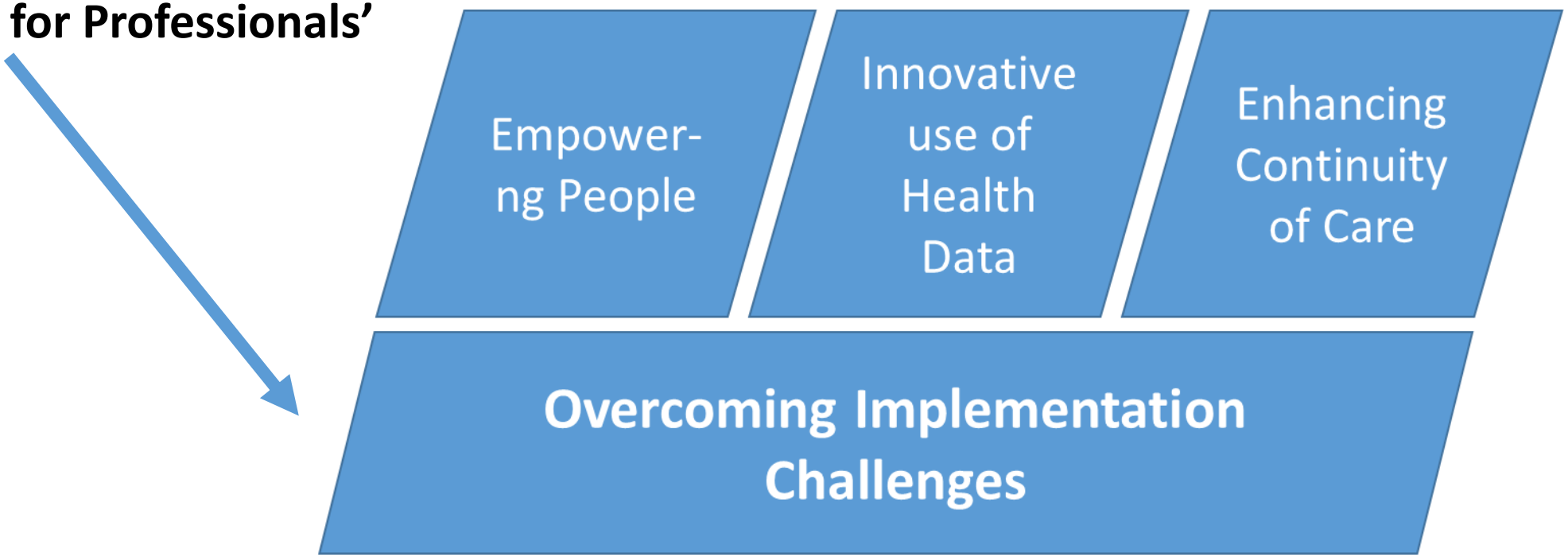
eHealth Network's MWP 2018-2021

- 3rd Multiannual Work Programme 2018-2021 "eHealth in support for better health"
- Priority Area D "Overcoming Implementation Challenges"

'e-Skills for Professionals'



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T6.3 e-Skills for Professionals

eHAction
Joint Action supporting the eHealth Network

Understand how common standards or frameworks can be exploited as part of a structured methodology to develop the e-Skills necessary to support eHealth in MS/C amongst current health professionals. The task concentrates on using competence frameworks in a competency based approach to workforce development.

T6.3 e-Skills for Professionals

1. Is there a common standard or competence framework that specifies the e-skills needed by health professionals to perform their current roles and take advantage of the digitalisation of healthcare?
2. Is there a way of using such a competence framework to measure current and desired e-skills competence and identify gaps at individual, group or organisational level?
3. Can e-skills competences be mapped to learning outcomes that form the basis of an action plan for e-skills development?
4. Can an e-skills competence framework serve as a structure upon which to define learning outcomes and write training curricula in medical school and organisational settings?
5. Can the use of competence frameworks as described above be incorporated into the continuous professional development of health professionals?

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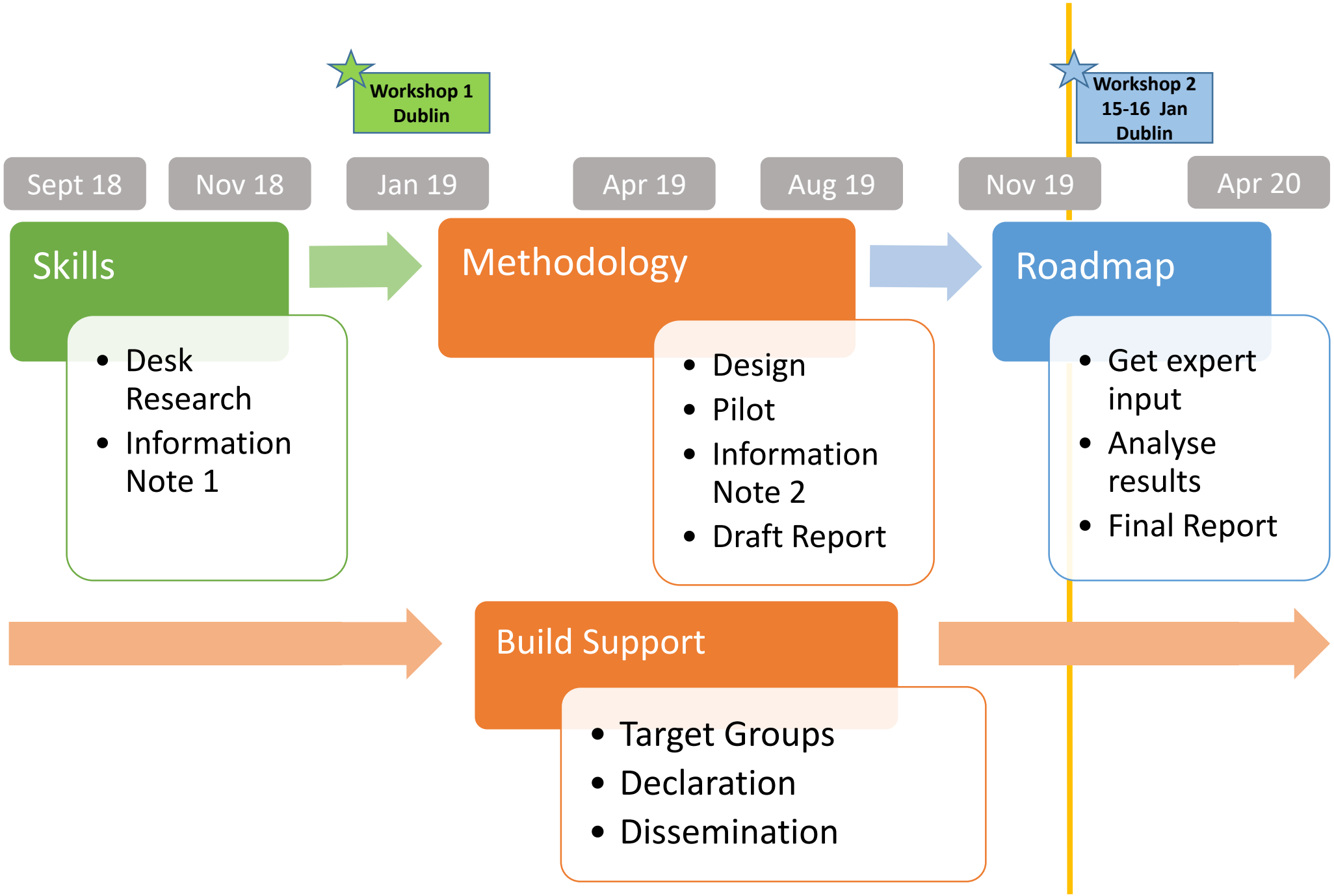
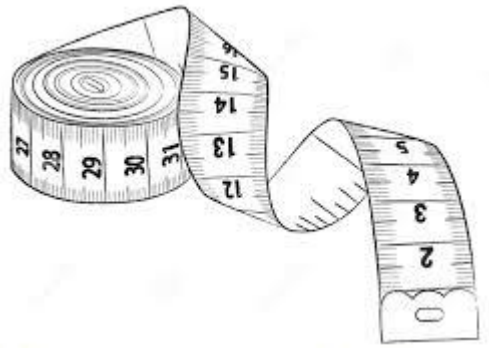

Workshop 1
Dublin
Workshop 2
15-16 Jan
Dublin
Sept 18
Nov 18
Jan 19
Apr 19
Aug 19
Nov 19
Apr 20
Skills
Desk Research
Information Note 1
Methodology
Design
Pilot
Information Note 2
Draft Report
Roadmap
Get expert input
Analyse results
Final Report
Build Support
Target Groups
Declaration
Dissemination

“What gets measured gets done.”

Attributed to Rheticus, renaissance mathematician and astronomer.



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Competence based approach

- A person must demonstrate the ability to perform a job's specific tasks
- Based on measurable skills

1. Competence standards
2. Competence mapping
3. Competence based training/learning

https://www.thecompetencygroup.com/competency-services/discover-the-benefits-of-a-competency-based-approach/

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What is a Competence?

- The European e-Competence Framework defines competence as "**a demonstrated ability to apply knowledge, skills and attitudes for achieving observable results**".
- Competence example = Playing the Piano
- At work, each individual role has its own set of competences (skills, knowledge and attributes) needed to perform the job effectively.

A Competence Profile ≠ **A Job Description**

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Competence Name	Description
Play the Piano	Plays the piano to generate music.

Level	Key Proficiency
Beginner	Plays both hands together. Keeps steady rhythm and beat. Can play C, G and F signatures.
Intermediate	Left hand and right hand can play independent of each other. Harmonic, melodic minor chords, scales and arpeggios.
Advanced	Can sight read intermediate songs very well. Can play in all key signatures.

Category	Competence Name	Description
F. USE	Electronic Health Information Usage, Exchange and Sharing	Shares electronic patient health information guaranteeing safety and privacy requirements. Uses electronic health information for secondary purposes with patients' consent.

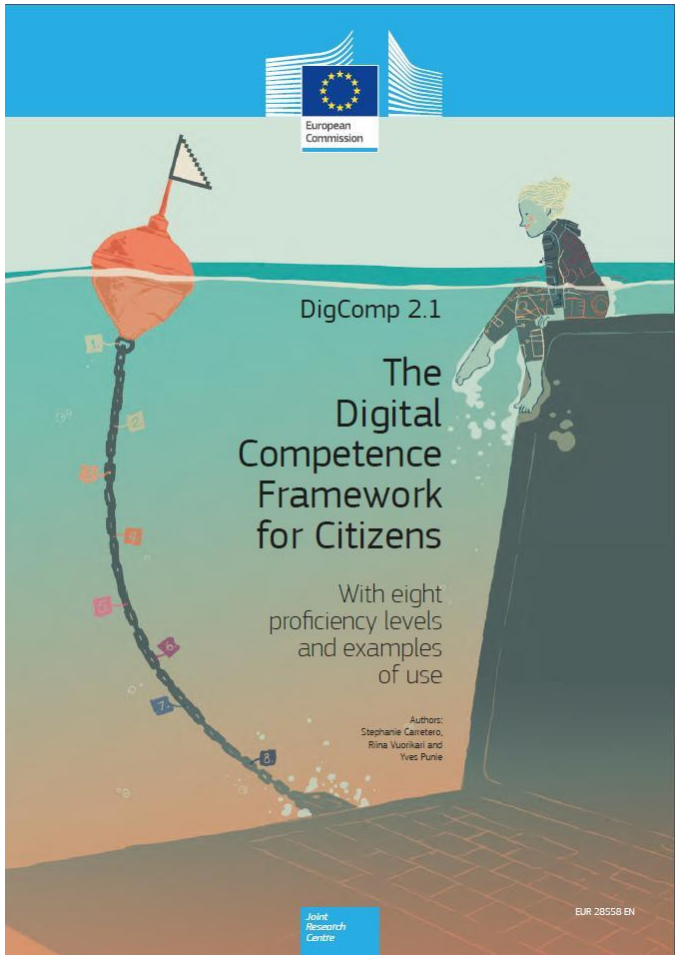
Level	Key Proficiency
e-2	Sends and receives electronic health data, obeying best practices of transfer of information in a secure way. Uses appropriate electronic health information for daily tasks.
e-3	Monitors and provides guidance on the usage and sharing process of electronic health record data. Contributes to the development of best practices.
e-4	Leads development of policies for the electronic information sharing and usage in accordance with national guidance and relevant legislation.

EU Competence Frameworks

EntreComp

European e-Competence Framework

e-CF



DigComp

DigCompEdu

DigCompOrg

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e-CF: A European Standard

European Norm (EN) 16234-1

http://www.ecompetences.eu/

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Health Competence Frameworks

- Various professional standards frameworks
  - e-skills partly or not included
- General digital skills frameworks
  - Not sector specific
- 3 x e-Health Frameworks:
  1. HITCOMP
  2. eHealth Capability Framework from Australia
  3. JAseHN eHealth Competence Model

HITComp

- Heath Information Technology Competences
- An EU-US project funded under Horizon 2020
- **HITComp is a searchable database designed for educators, workforce developers, current and future workforce members, students, eHealth managers, staffing experts and other interested parties in healthcare information technology/eHealth.**
- 1000 competences in 5 domains: Patient Care, Administration, Informatics, Engineering/ICT and Research/BioMedecine
- hitcomp.org

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eHealth Capability Framework

Based on four core statements:

Statement 1 – Digital Technologies, Systems and Policies

Statement 2 – Clinical Practice and Applications

Statement 3 – Data Analysis and Knowledge Creation

Statement 4 - System and Technology Application

- For each statement there is a list of knowledge items and performance (competences) elements.
- Not role or sector specific – for all health professionals.

https://www.hisa.org.au/slides/hic17/wed/ProfTimShaw.pdf

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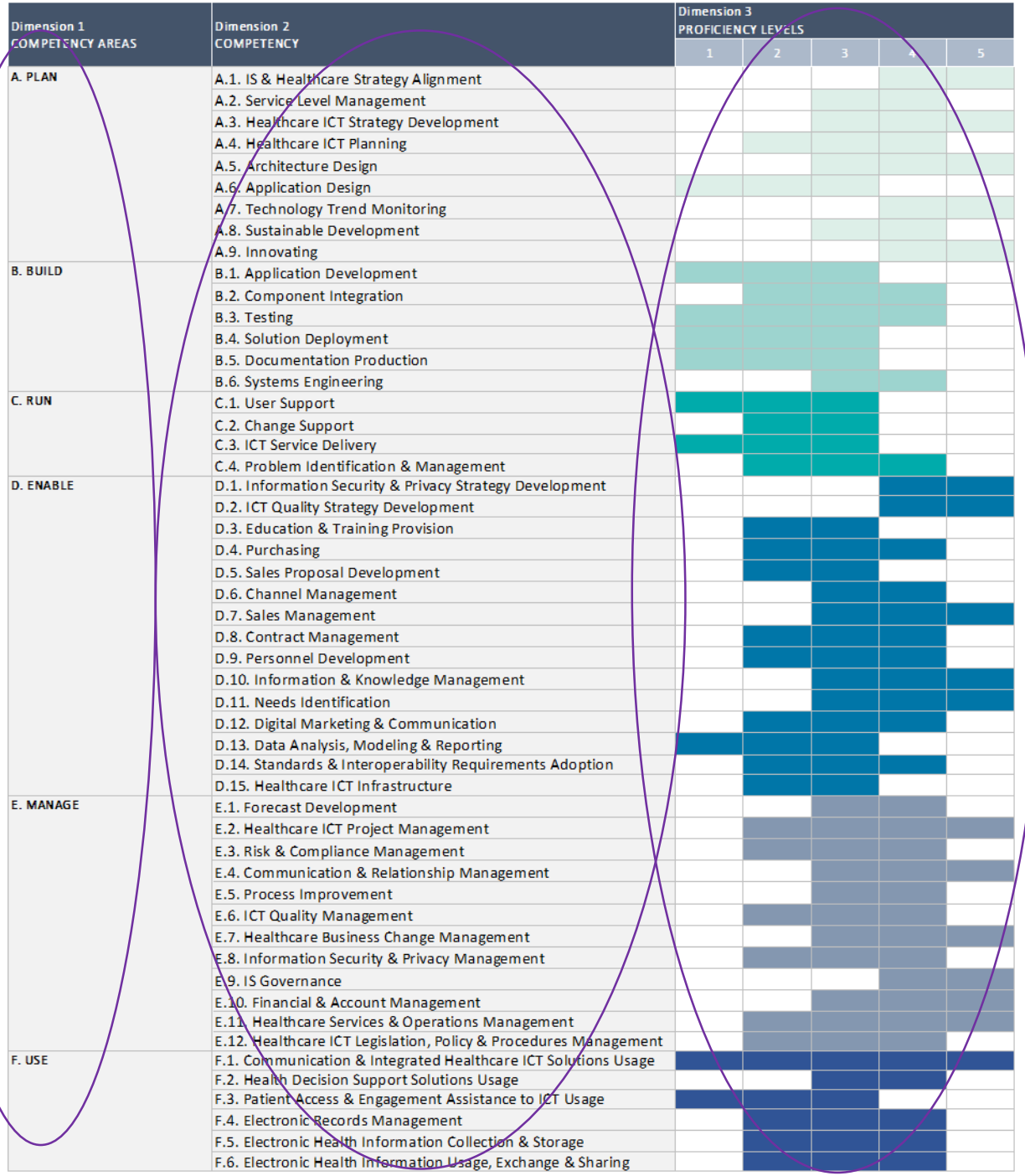
JASEHN

eHealth Competence Model

- 6 areas
- 52 competencies
- 5 proficiency levels
- Knowledge and skills described at level 4
- 37 Healthcare Role Profiles in:
  - ‘Health’
  - ‘Non-Health’
  - ‘IT’



Dimension 1 COMPETENCY AREAS	Dimension 2 COMPETENCY	Dimension 3 PROFICIENCY LEVELS				
		1	2	3	4	5
A. PLAN	A.1. IS & Healthcare Strategy Alignment					
	A.2. Service Level Management					
	A.3. Healthcare ICT Strategy Development					
	A.4. Healthcare ICT Planning					
	A.5. Architecture Design					
	A.6. Application Design					
	A.7. Technology Trend Monitoring					
	A.8. Sustainable Development					
	A.9. Innovating					
B. BUILD	B.1. Application Development					
	B.2. Component Integration					
	B.3. Testing					
	B.4. Solution Deployment					
	B.5. Documentation Production					
	B.6. Systems Engineering					
C. RUN	C.1. User Support					
	C.2. Change Support					
	C.3. ICT Service Delivery					
	C.4. Problem Identification & Management					
D. ENABLE	D.1. Information Security & Privacy Strategy Development					
	D.2. ICT Quality Strategy Development					
	D.3. Education & Training Provision					
	D.4. Purchasing					
	D.5. Sales Proposal Development					
	D.6. Channel Management					
	D.7. Sales Management					
	D.8. Contract Management					
	D.9. Personnel Development					
	D.10. Information & Knowledge Management					
	D.11. Needs Identification					
	D.12. Digital Marketing & Communication					
	D.13. Data Analysis, Modeling & Reporting					
	D.14. Standards & Interoperability Requirements Adoption					
	D.15. Healthcare ICT Infrastructure					
E. MANAGE	E.1. Forecast Development					
	E.2. Healthcare ICT Project Management					
	E.3. Risk & Compliance Management					
	E.4. Communication & Relationship Management					
	E.5. Process Improvement					
	E.6. ICT Quality Management					
	E.7. Healthcare Business Change Management					
	E.8. Information Security & Privacy Management					
	E.9. IS Governance					
	E.10. Financial & Account Management					
	E.11. Healthcare Services & Operations Management					
	E.12. Healthcare ICT Legislation, Policy & Procedures Management					
F. USE	F.1. Communication & Integrated Healthcare ICT Solutions Usage					
	F.2. Health Decision Support Solutions Usage					
	F.3. Patient Access & Engagement Assistance to ICT Usage					
	F.4. Electronic Records Management					
	F.5. Electronic Health Information Collection & Storage					
	F.6. Electronic Health Information Usage, Exchange & Sharing					

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European e-Competence Framework

European e-Competence Framework 3.0 overview

Dimension 1 5 e-CF areas (A – E)	Dimension 2 40 e-Competences identified	Dimension 3 e-Competence proficiency levels e-1 to e-5, related to EQF levels 3–8				
		e-1	e-2	e-3	e-4	e-5
A. PLAN	A.1. IS and Business Strategy Alignment				■	■
	A.2. Service Level Management			■	■	
	A.3. Business Plan Development			■	■	■
	A.4. Product/Service Planning		■	■	■	
	A.5. Architecture Design			■	■	■
	A.6. Application Design	■	■	■		
	A.7. Technology Trend Monitoring				■	■
	A.8. Sustainable Development			■	■	
	A.9. Innovating				■	■
B. BUILD	B.1. Application Development	■	■	■		
	B.2. Component Integration		■	■	■	
	B.3. Testing	■	■	■	■	
	B.4. Solution Deployment	■	■	■		
	B.5. Documentation Production	■	■	■		
	B.6. Systems Engineering			■	■	
C. RUN	C.1. User Support	■	■	■		
	C.2. Change Support		■	■		
	C.3. Service Delivery	■	■	■		
	C.4. Problem Management		■	■	■	
D. ENABLE	D.1. Information Security Strategy Development				■	■
	D.2. ICT Quality Strategy Development				■	■
	D.3. Education and Training Provision		■	■		
	D.4. Purchasing		■	■	■	
	D.5. Sales Proposal Development		■	■		
	D.6. Channel Management			■	■	
	D.7. Sales Management			■	■	■
	D.8. Contract Management		■	■	■	
	D.9. Personnel Development		■	■	■	
	D.10. Information and Knowledge Management			■	■	■
	D.11. Needs Identification			■	■	■
	D.12. Digital Marketing		■	■	■	
E. MANAGE	E.1. Forecast Development			■	■	
	E.2. Project and Portfolio Management		■	■	■	■
	E.3. Risk Management		■	■	■	
	E.4. Relationship Management			■	■	
	E.5. Process Improvement			■	■	
	E.6. ICT Quality Management		■	■	■	
	E.7. Business Change Management			■	■	■
	E.8. Information Security Management		■	■	■	
	E.9. IS Governance				■	■

JASEHN

eHealth Competence Model

Dimension 1 COMPETENCY AREAS	Dimension 2 COMPETENCY	Dimension 3 PROFICIENCY LEVELS				
		1	2	3	4	5
A. PLAN	A.1. IS & Healthcare Strategy Alignment				■	■
	A.2. Service Level Management			■	■	■
	A.3. Healthcare ICT Strategy Development			■	■	■
	A.4. Healthcare ICT Planning		■	■	■	
	A.5. Architecture Design			■	■	■
	A.6. Application Design	■	■	■		
	A.7. Technology Trend Monitoring				■	■
	A.8. Sustainable Development			■	■	
	A.9. Innovating				■	■
B. BUILD	B.1. Application Development	■	■	■		
	B.2. Component Integration		■	■	■	
	B.3. Testing	■	■	■	■	
	B.4. Solution Deployment	■	■	■		
	B.5. Documentation Production	■	■	■		
	B.6. Systems Engineering			■	■	
C. RUN	C.1. User Support	■	■	■		
	C.2. Change Support		■	■		
	C.3. ICT Service Delivery	■	■	■		
	C.4. Problem Identification & Management		■	■	■	
D. ENABLE	D.1. Information Security & Privacy Strategy Development				■	■
	D.2. ICT Quality Strategy Development				■	■
	D.3. Education & Training Provision		■	■		
	D.4. Purchasing		■	■	■	
	D.5. Sales Proposal Development		■	■		
	D.6. Channel Management			■	■	
	D.7. Sales Management			■	■	■
	D.8. Contract Management		■	■	■	
	D.9. Personnel Development		■	■	■	
	D.10. Information & Knowledge Management			■	■	■
	D.11. Needs Identification			■	■	■
	D.12. Digital Marketing & Communication		■	■	■	
	D.13. Data Analysis, Modeling & Reporting	■	■	■		
	D.14. Standards & Interoperability Requirements Adoption		■	■	■	
	D.15. Healthcare ICT Infrastructure		■	■		
E. MANAGE	E.1. Forecast Development			■	■	
	E.2. Healthcare ICT Project Management		■	■	■	■
	E.3. Risk & Compliance Management		■	■	■	
	E.4. Communication & Relationship Management			■	■	■
	E.5. Process Improvement			■	■	
	E.6. ICT Quality Management		■	■	■	
	E.7. Healthcare Business Change Management			■	■	■
	E.8. Information Security & Privacy Management		■	■	■	
	E.9. IS Governance				■	■
	E.10. Financial & Account Management			■	■	■
	E.11. Healthcare Services & Operations Management		■	■	■	■
	E.12. Healthcare ICT Legislation, Policy & Procedures Management		■	■	■	
F. USE	F.1. Communication & Integrated Healthcare ICT Solutions Usage	■	■	■	■	■
	F.2. Health Decision Support Solutions Usage			■	■	
	F.3. Patient Access & Engagement Assistance to ICT Usage	■	■	■		
	F.4. Electronic Records Management		■	■	■	
	F.5. Electronic Health Information Collection & Storage		■	■	■	
	F.6. Electronic Health Information Usage, Exchange & Sharing		■	■	■	

AREA	COMPETENCY	7 x Health Role Profiles						
		Healthcare Dept./Service Manager	Healthcare Specialist	Healthcare Provider/ Practitioner	Healthcare Technician	Care Coodinator	Medical Scribe	Public Health Practitioner
D. ENABLE	D.3. Education & Training Provision		✓✓✓					
	D.9. Personnel Development		✓✓✓					
	D.10. Information & Knowledge Management	✓✓✓✓	✓✓✓✓	✓✓✓✓		✓✓✓		
	D.11. Needs Identification	✓✓✓✓						✓✓✓✓
	D.13. Data Analysis, Modeling & Reporting							✓✓
	D.14. Standards & Interoperability Requirements Adoption						✓✓✓	
	D.15. Healthcare ICT Infrastructure						✓✓✓	
E. MANAGE	E.4. Communication & Relationship Management					✓✓✓✓		✓✓✓
	E.11. Healthcare Services & Operations Management	✓✓✓✓						
	E.12. Healthcare ICT Legislation, Policy & Procedures Mgmt.							✓✓✓
F. USE	F.1. Communication & Integrated Healthcare ICT Solns. Usage	✓✓✓✓✓	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓✓	✓✓✓✓	
	F.2. Health Decision Support Solutions Usage	✓✓✓✓	✓✓✓✓	✓✓✓				
	F.3. Patient Access & Engagement Assistance to ICT Usage		✓✓✓	✓✓✓	✓✓✓	✓✓✓	✓✓	
	F.4. Electronic Records Management	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓			
	F.5. Electronic Health Information Collection & Storage	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓			
	F.6. Electronic Health Information Usage, Exchange & Sharing	✓✓✓✓	✓✓✓✓	✓✓✓	✓✓			

Task 6.3 Pilot

DEMONSTRATION
https://www.youtube.com/watch?reload=9&v=UruBlJXPQwU&feature=youtu.be

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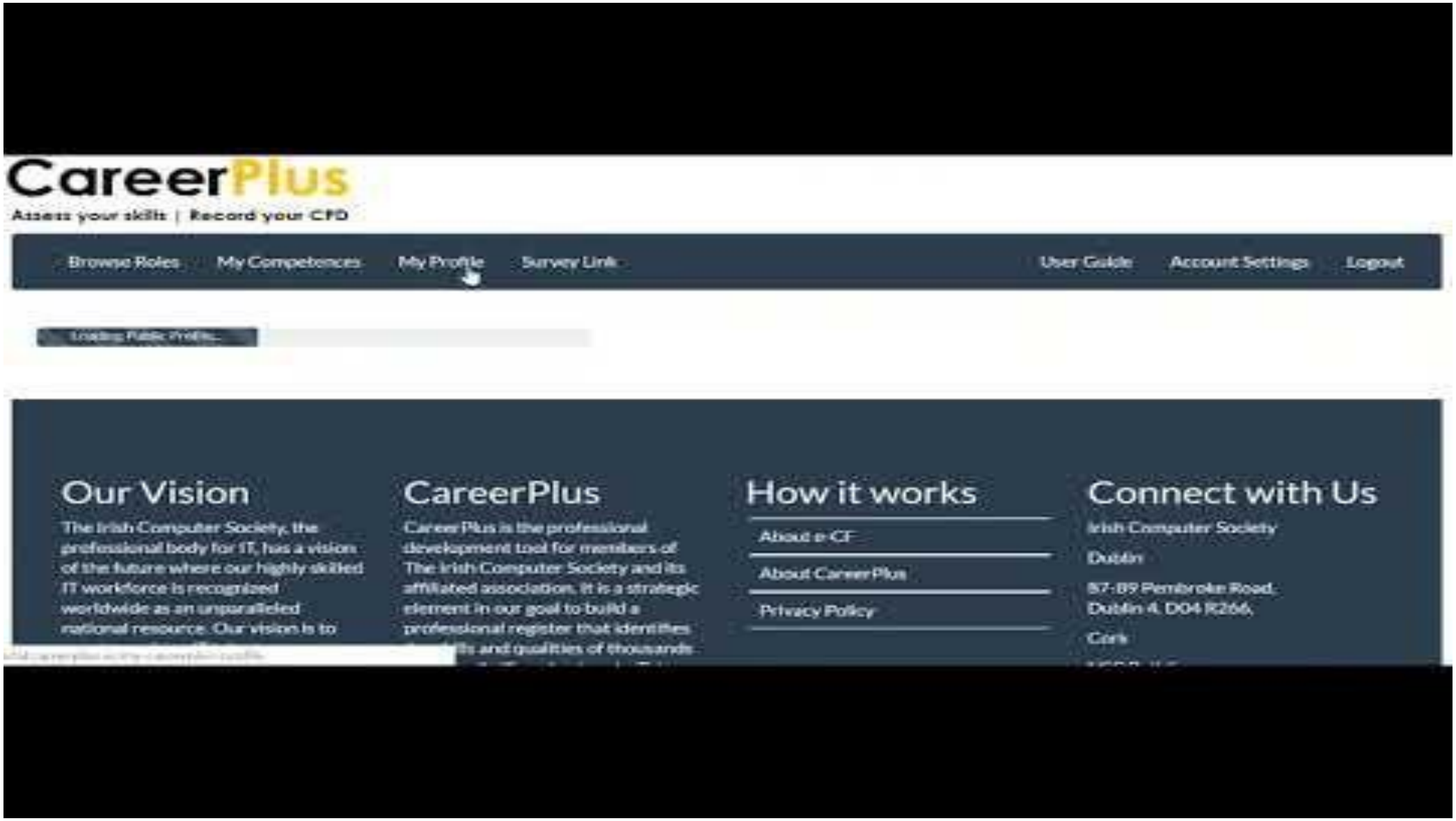
CareerPlus
Assess your skills | Record your CPD
Browse Roles
My Competences
My Profile
Survey Link
User Guide
Account Settings
Logout
Our Vision
The Irish Computer Society, the professional body for IT, has a vision of the future where our highly skilled IT workforce is recognized worldwide as an unparalleled national resource. Our vision is to
CareerPlus
CareerPlus is the professional development tool for members of The Irish Computer Society and its affiliated association. It is a strategic element in our goal to build a professional register that identifies
How it works
About e-CF
About CareerPlus
Privacy Policy
Connect with Us
Irish Computer Society
Dublin
87-89 Pembroke Road,
Dublin 4, D04 R266,
Cork

Interim Pilot Results

- 104 participants from Serbia (52), Ireland (30) and Cyprus (24)
  - 31 nurses
  - 29 midwives
  - 24 doctors
  - 11 dentists
  - 9 pharmacists
- Mean number of selections was 7.33, Mode 7, Median 7

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‘Most Popular’ Competence

Category	Competence Name	Description
F. USE	Health Decision Support Usage	Supports healthcare deliver actors in direct healthcare service provision, by helping them on the decision making process regarding diagnosis, medications or test options.

Level	Key Proficiency
e-3	Uses health decision support systems on the daily practice to help on the decision-making process. Collaborates to improve and enhance these tools with technical knowledge and clinical knowledge.

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Dimension 1 COMPETENCY AREAS	Dimension 2 COMPETENCY	Dimension 3 PROFICIENCY LEVELS				
		1	2	3	4	5
A. PLAN	A.1. IS & Healthcare Strategy Alignment				4	1
	A.2. Service Level Management			4	1	
	A.3. Healthcare ICT Strategy Development			2	2	1
	A.4. Healthcare ICT Planning		1	3		
	A.5. Architecture Design					1
	A.6. Application Design	3	1	1		
	A.7. Technology Trend Monitoring				3	3
	A.8. Sustainable Development			4	1	
	A.9. Innovating				4	1
B. BUILD	B.1. Application Development	2	1	1		
	B.2. Component Integration			1	1	
	B.3. Testing	3	1			
	B.4. Solution Deployment		1	1		
	B.5. Documentation Production		1	1		
	B.6. Systems Engineering			3		
C. RUN	C.1. User Support	5	1			
	C.2. Change Support		1	2		
	C.3. ICT Service Delivery			2		
	C.4. Problem Identification & Management		3	1	1	
D. ENABLE	D.1. Information Security & Privacy Strategy Development				3	2
	D.2. ICT Quality Strategy Development				2	2
	D.3. Education & Training Provision		6	3		
	D.4. Purchasing		4	1		
	D.5. Sales Proposal Development		2	2		
	D.6. Channel Management			4		
	D.7. Sales Management			2	1	1
	D.8. Contract Management		3	1		
	D.9. Personnel Development		4	4		
	D.10. Information & Knowledge Management			21	33	30
	D.11. Needs Identification			8	2	1
	D.12. Digital Marketing & Communication			3	2	
	D.13. Data Analysis, Modeling & Reporting	2	2			
	D.14. Standards & Interoperability Requirements Adoption		5			
	D.15. Healthcare ICT Infrastructure		4	1		
E. MANAGE	E.1. Forecast Development			3		
	E.2. Healthcare ICT Project Management		1		1	1
	E.3. Risk & Compliance Management		2		1	
	E.4. Communication & Relationship Management			4	1	
	E.5. Process Improvement			3		
	E.6. ICT Quality Management		1		2	
	E.7. Healthcare Business Change Management			4		
	E.8. Information Security & Privacy Management		2		1	
	E.9. IS Governance				3	
	E.10. Financial & Account Management			2		
	E.11. Healthcare Services & Operations Management		3	3	3	1
	E.12. Healthcare ICT Legislation, Policy & Procedures Management		1		2	
F. USE	F.1. Communication & Integrated Healthcare ICT Solutions Usage	22	25	13	15	11
	F.2. Health Decision Support Solutions Usage			52	22	
	F.3. Patient Access & Engagement Assistance to ICT Usage	18	20	31		
	F.4. Electronic Records Management		39	20	25	
	F.5. Electronic Health Information Collection & Storage		37	23	20	
	F.6. Electronic Health Information Usage, Exchange & Sharing		42	20	19	

Feedback

- Competences

"too wordy", "language very flowery", "the IT language used is not common to me", "the questions/competences were at times difficult to follow", and ***"questions were very difficult to understand… some quite vague".***

- Training

"basic HIT training", "computer training for all" and ***"training for aspects and skills for daily job"***, plus a comment that ***"skills won't be improved by maybe 3-4 online programmes completed in the year."***

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Feedback

- Use of Competence Frameworks

"focus on work environment by incorporating more practical examples into the competence framework", and ***"It should be built into the nursing programme, with an online easy use competency annually to maintain the skills".***

- One comment sums up the challenge in developing the e-skills of health professionals to contribute to the digital transformation of the health sector, which competence frameworks attempt to support:

"We don't know what we don't know."

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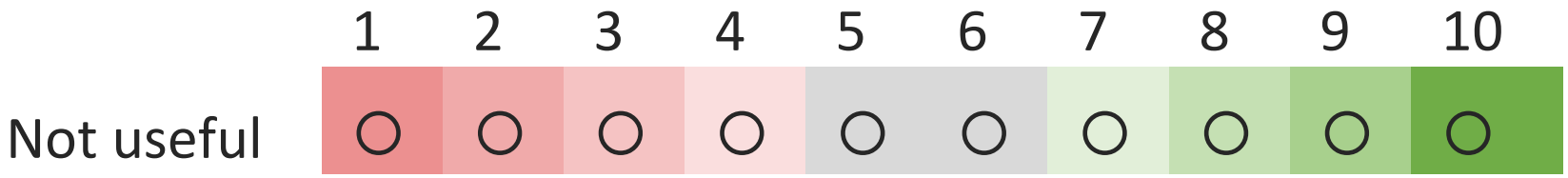
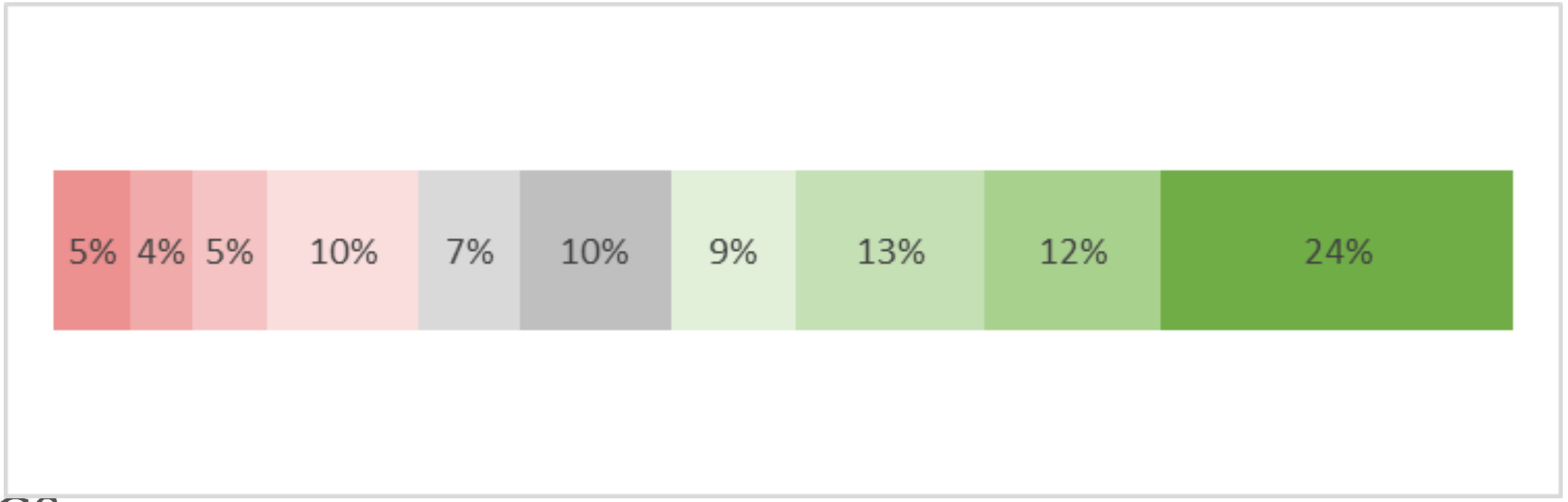
Did you find the competence self-assessment exercise useful?





(n=116)

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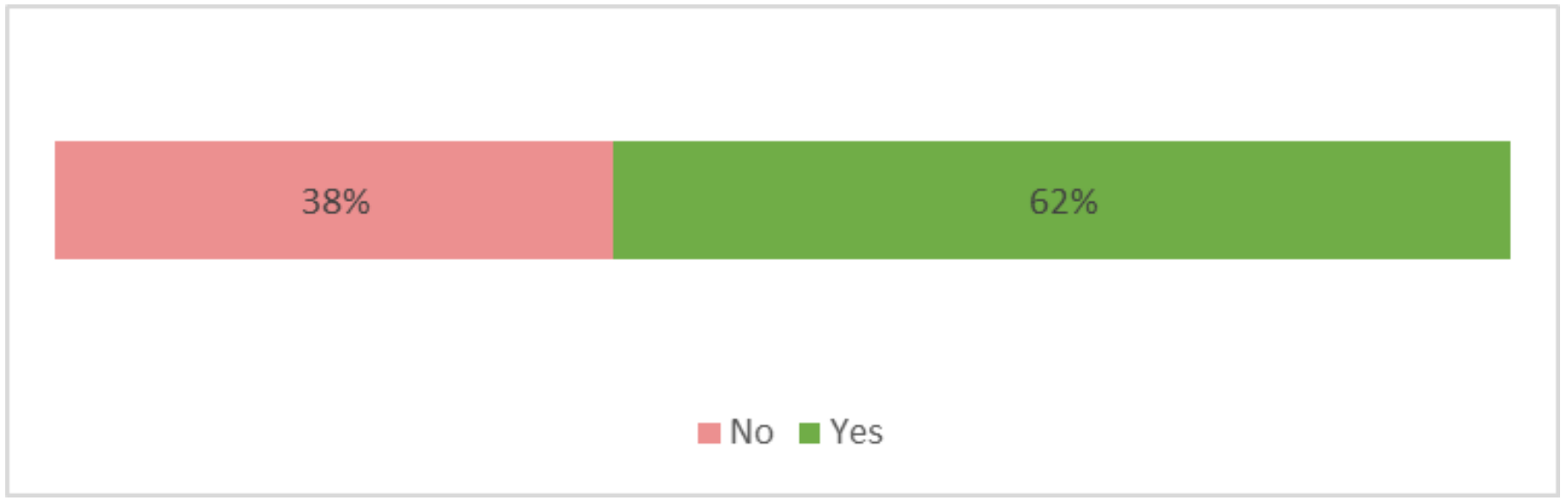
Would you recommend completing a competence self-assessment exercise to a friend/colleague/manager?

Yes ○ No ○



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The CPD Cycle

Task 6.3 Expert Interviews

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How can frameworks be used in practical scenarios to develop e-skills of health care professionals?

- By applying internationally developed frameworks and general e-learning frameworks to Finnish healthcare
- Frameworks have a role - not the end user training but in IT and the broader informatics team. The systems administration people, the business and IT people and the broad informatics family. Nurse Informatics Officer, Clinical Informatics etc. For Mary and Joe on the ward it is overkill. They don't need that level.
- Recommendations provide a structure for competence, what you should know.
- A health specific flavour of e-CF e.g. a nurse needs much more detail on health informatics. A data analytics person can do a data analytics MSC and plug on a health informatics module.

Do you believe self-assessment against standards and frameworks give a true picture of an individual's skills?

- Context is very important where the norm is and what it means. Help to benchmark.
- It may not. Benchmarking or peer assessment/evaluation is also needed.
- Yes. It supports the individual in self-knowledge and in pursuing skill development. Self-assessment usually supports learning but it is not applicable to all situations. e.g. in critical tasks different kind of testing/screening is also recommended.
- Yes: Self assessment is well known and well used. Nurses are used to using it. But it is not the only tool. Learning goes beyond self-assessment.

How can we support health professionals who want to deepen their e-skills?

- Varied training opportunities as people learn differently, exposure to a multi-channel approach
- Time and pay half of the training upon passing exams
- It is important for the employer to know the level of competence of their employees. Nationally, open educational materials are produced that support the competence development. It is important that different education levels provide education for this eHealth from the degree level of EQF 5 to 8.
- By identifying these people and tailoring them appropriate ways to deepen their e-Skills. They may also be asked how they feel. Involving / listening to staff is an important part of change management.

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"In healthcare everyone has two jobs: to do your work and to improve it."

Professor Paul Batalden, Institute for Healthcare Improvement, 2007.

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Cumann Ríomheolais Sláinte
Healthcare Informatics Society of Ireland

An Roinn Sláinte
DEPARTMENT OF HEALTH

eHAction
Joint Action supporting the eHealth Network