



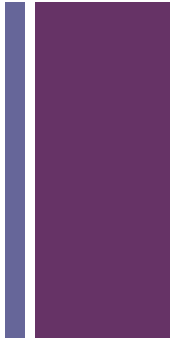
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ARRANGE-ICT
pArtneRship foR AddressiNG mEgatrends in ICT



ALEXANDER
INNOVATION
ZONE S.A.



pArtneRship foR AddressiNG mEgatrends in ICT

Output 3 (O3) Foresight Study

Thessaloniki, 19th November 2020

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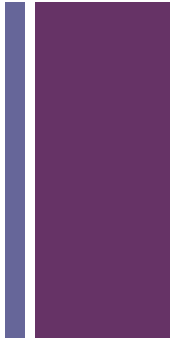
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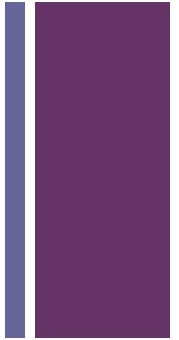
Foresight Study for the ICT sector



- Technology Foresight (TF)
 - an essentially important tool for long-term planning at
 - Regional,
 - National or even International level
 - exploring the future to record trends and potential developments
 - the primary aim
 - improving and preparing today's decisions and strategic choices as best as possible



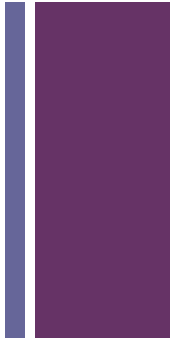
Existing tools that can be used in order to deliver the TF



- The 10 Most Common Technologies of Foresight in Europe (EFMN)

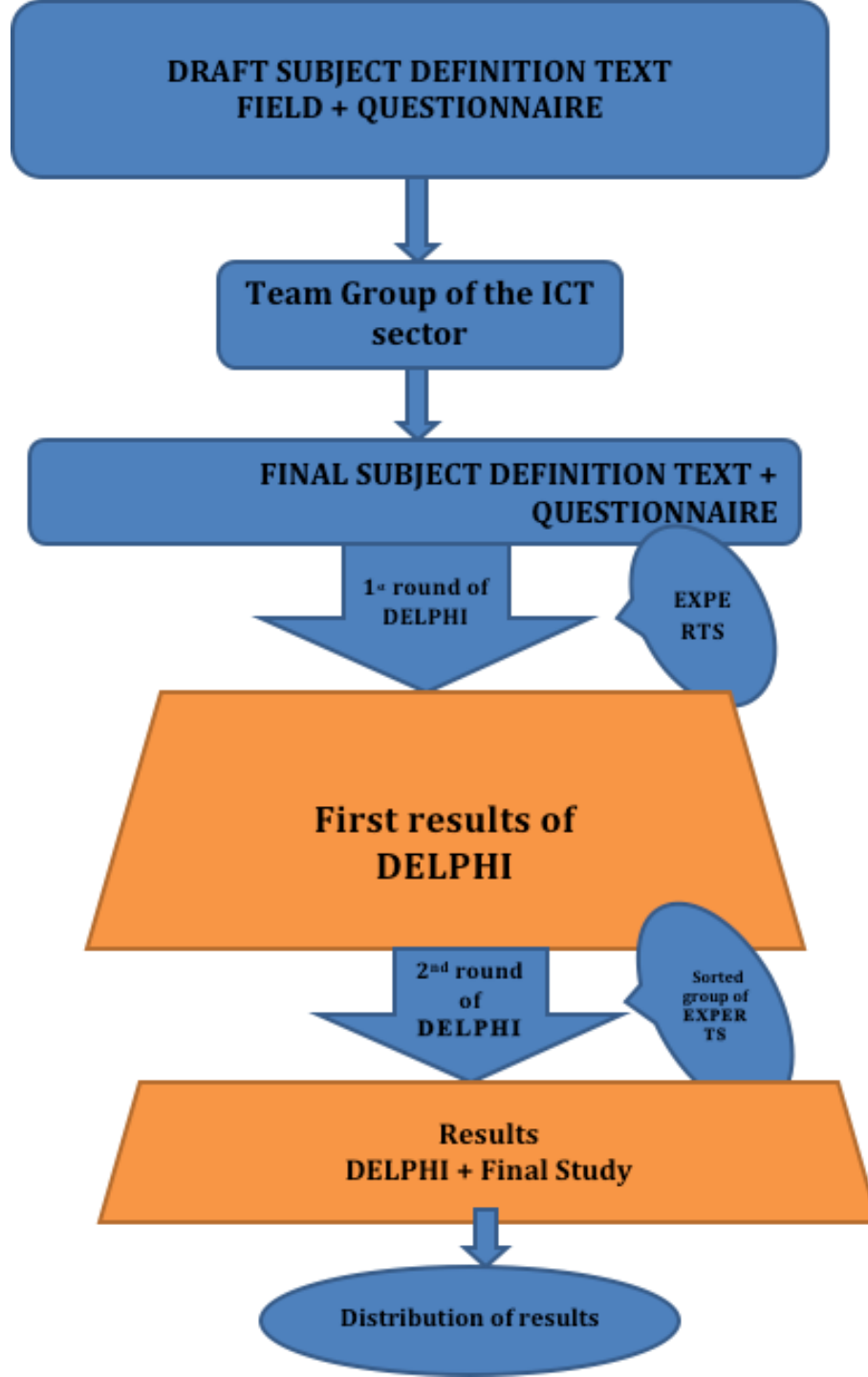


DELPHI technique



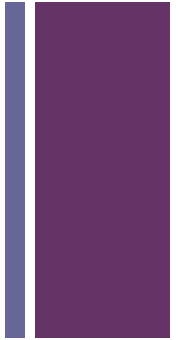
■ Delphi

- a research methodology widely used in a wide range of disciplines
- obtains the maximum possible consensus of a pre-selected group of experts on a topic,
 - by providing them with a series of consecutive questionnaires.





Delphi Research Questionnaire (1/2)



1. Methodology

- Internet based research Delphi

2. Research Period

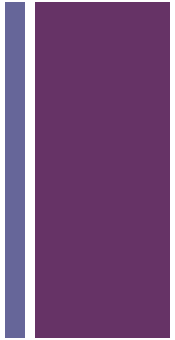
- Phase 1: July-August 2020
- Phase 2: September-October 2020

3. Interviews conducted

1. 1st Phase: $n_1 = 48$
(Percentage of answers: 81.25 %)
2. 2nd Phase: $n_2 = 39$
(Percentage of answers: 89.74 %)



Delphi Research Questionnaire (2/2)



4. Selection of experts

- Representatives from:

- business,
- academic community,
- public bodies

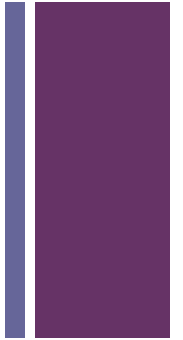
invited to participate in the research,

- based on their specialization and experience in ICT

Business	$n_1 = 14$	$n_2 = 12$
Academics	$n_1 = 20$	$n_2 = 17$
Public bodies	$n_1 = 14$	$n_2 = 10$



Delphi statement catalog (1/3)



- The sector encompasses a diverse range of roles and skills.
- The questionnaire includes specific questions concerning the identification of gaps in ICT skills on 2 categories and 13 sectors:
 - Horizontal Sectors
 - Vertical Sectors

**How important do you think
the statement is?**

**(1 = not important; 2 = hardly important;
3 = important; 4 = quite important;
5 = totally important)**



Delphi statement catalog (2/3)

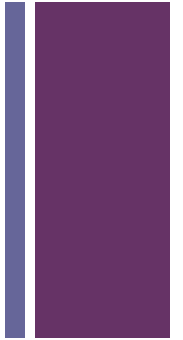


Horizontal Sectors:

1. **Programming**
2. **Device, Network and Cloud Infrastructure**
3. **Cyber Security**
4. **ICT Business Change**
5. **Artificial Intelligence**
6. **Data Science**
7. **Web Services**



Delphi statement catalog (3/3)



Vertical Sectors:

- 8. E-learning**
- 9. E-health care**
- 10. E-government**
- 11. E-payments**
- 12. E-culture/tourism**
- 13. Generating IT ancillary/soft/moderate skills**

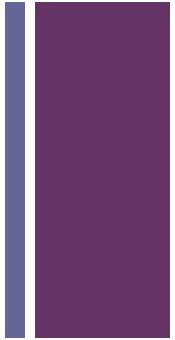
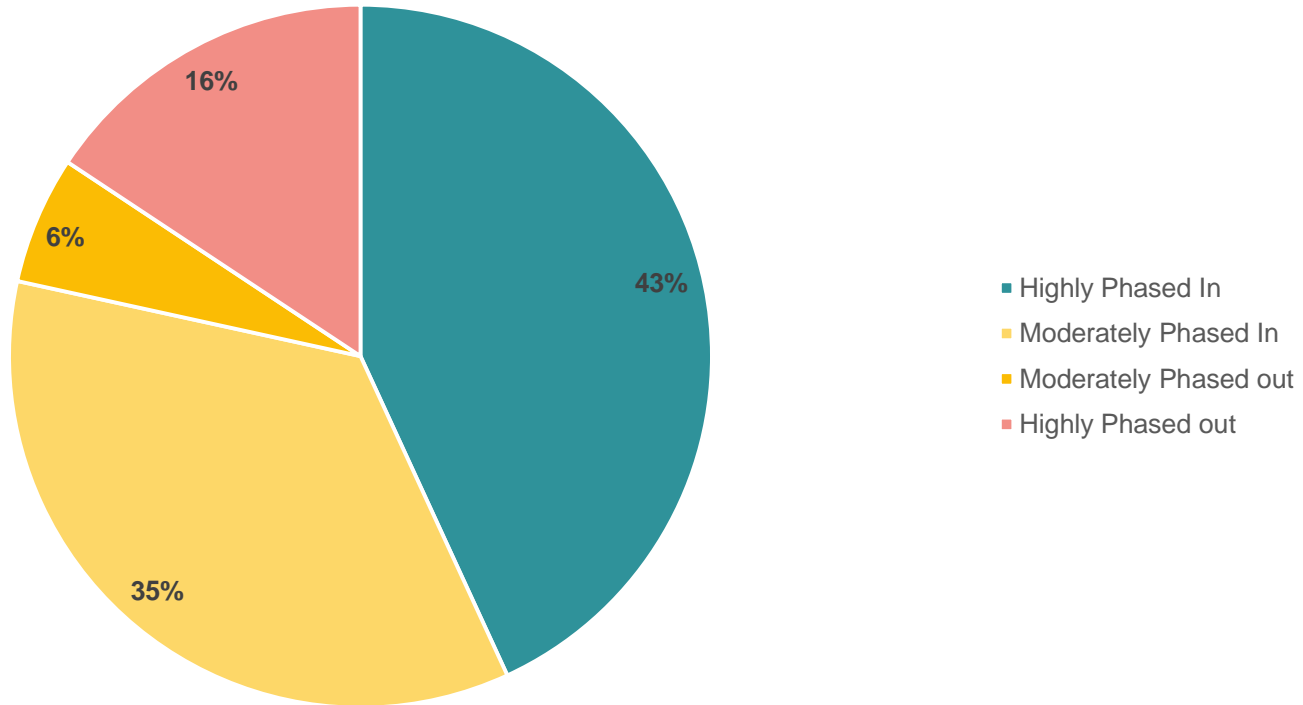
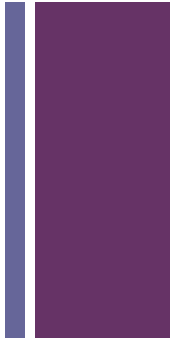


Table: Description of the classifications

	Highly Phased In	$M \geq 4, QD \leq 0.5$	Keeping
	Moderately Phased In	$M \geq 4, 0.5 < QD \leq 1$	Keeping
	Moderately Phased Out	$M < 4, 0.5 < QD \leq 1$	Keeping
	Highly Phased Out	$M < 4, QD \leq 0.5$	Discarding

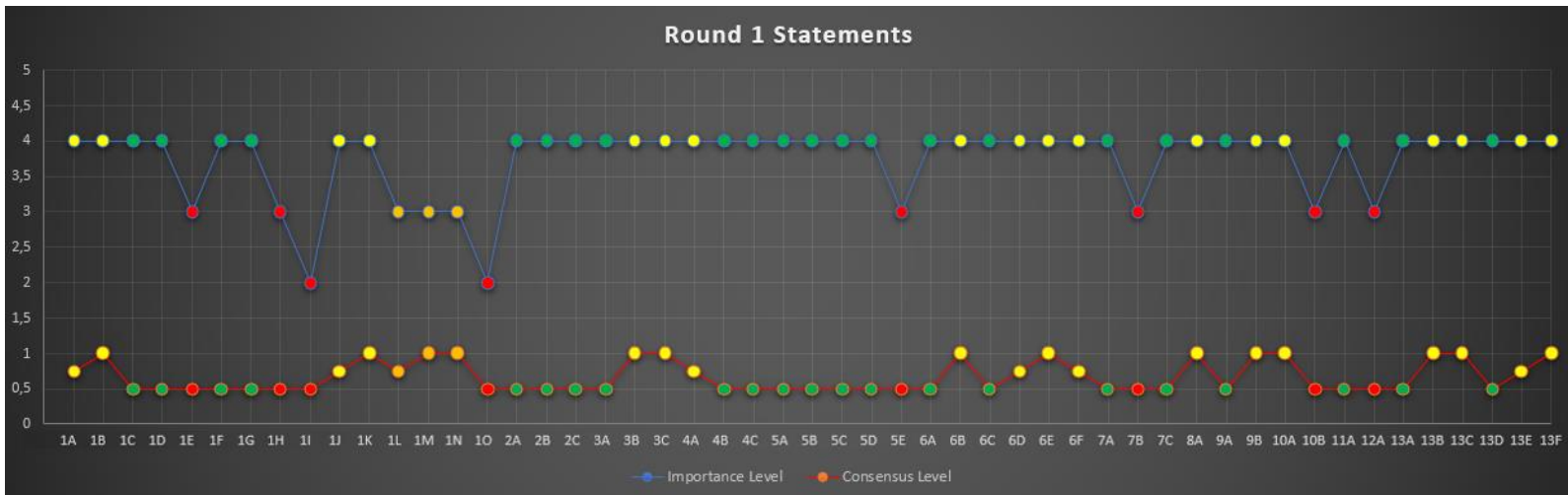
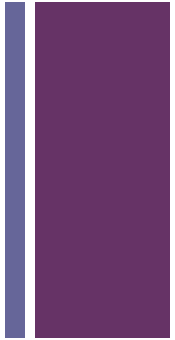


Delphi Round 1 - Results (1/2)



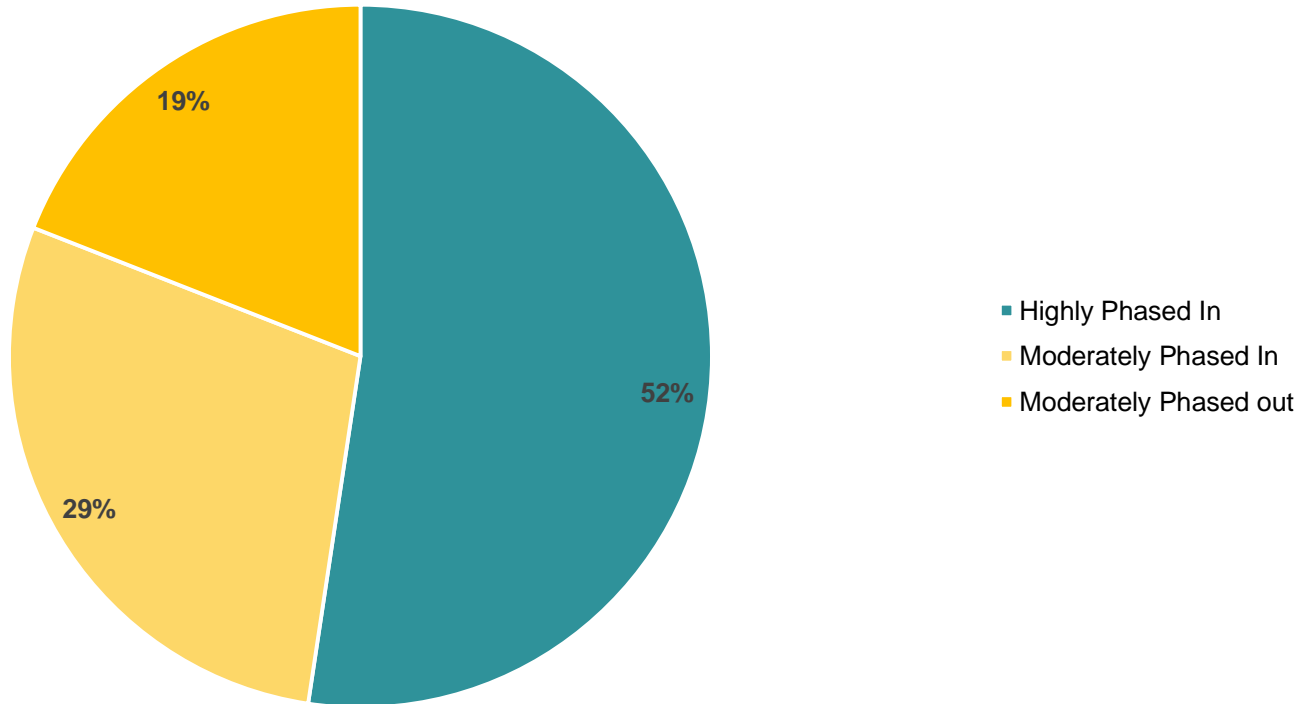
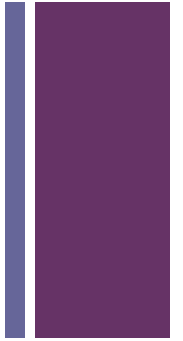


Delphi Round 1 - Results (2/2)



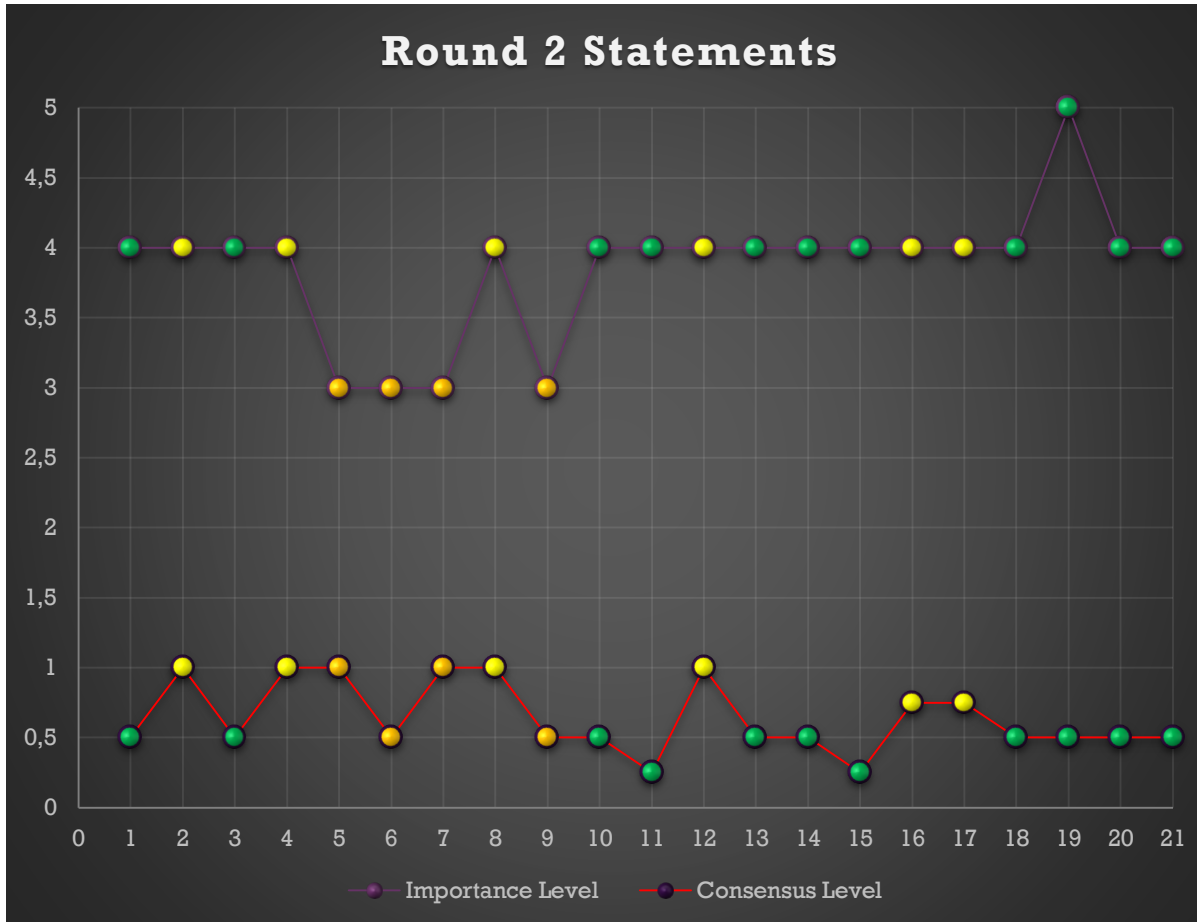


Delphi Round 2 - Results (1/4)





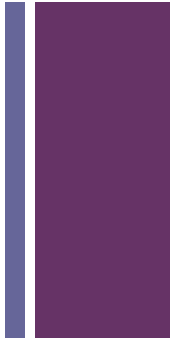
Delphi Round 2 - Results (2/4)



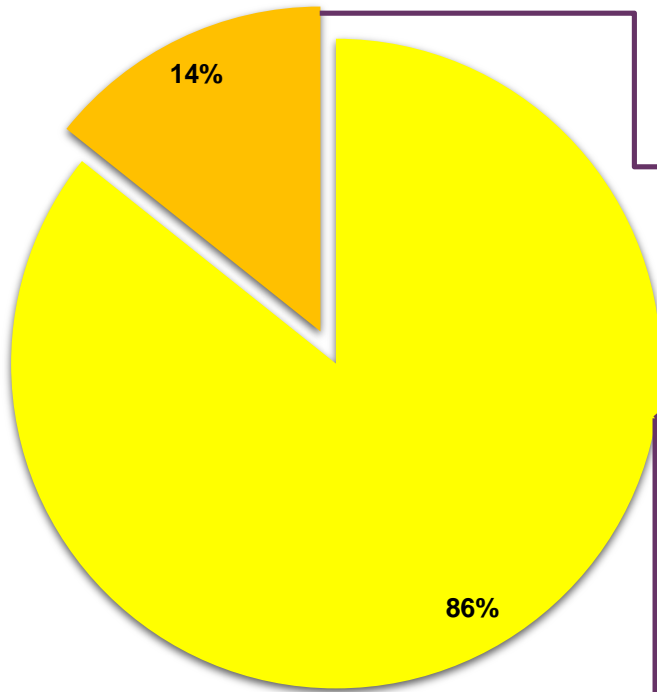
- 1 1A. SQL
- 2 1B. JAVA
- 3 1J. PYTHON
- 4 1K. PHP
- 5 1L. OBJECTIVE C
- 6 1M. AJAX
- 7 1N. ASP.NET
- 8 3B. Communication security
- 9 3C. Quantum cryptography Expert
- 10 4A. ICT Business analyst
- 11 6B. Database Designer
- 12 6D. Big Data Modeling
- 13 6E. Data Analysis
- 14 6F. Data visualization
- 15 8A. Education and e-learning
- 16 9B. Advanced health monitoring system
- 17 10A. Digital Certificates Specialists
- 18 13B. Teamwork
- 19 13C. Communication
- 20 13E. Negotiation
- 21 13F. Technology Leadership



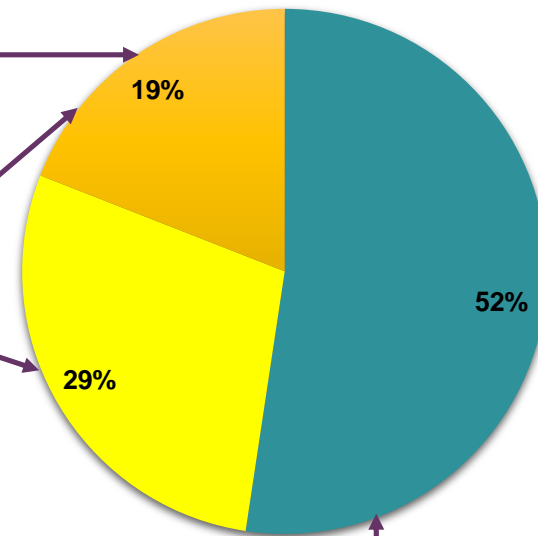
Delphi Round 2 - Results (3/4)



R1 Run Statements in R2



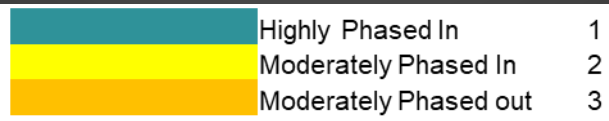
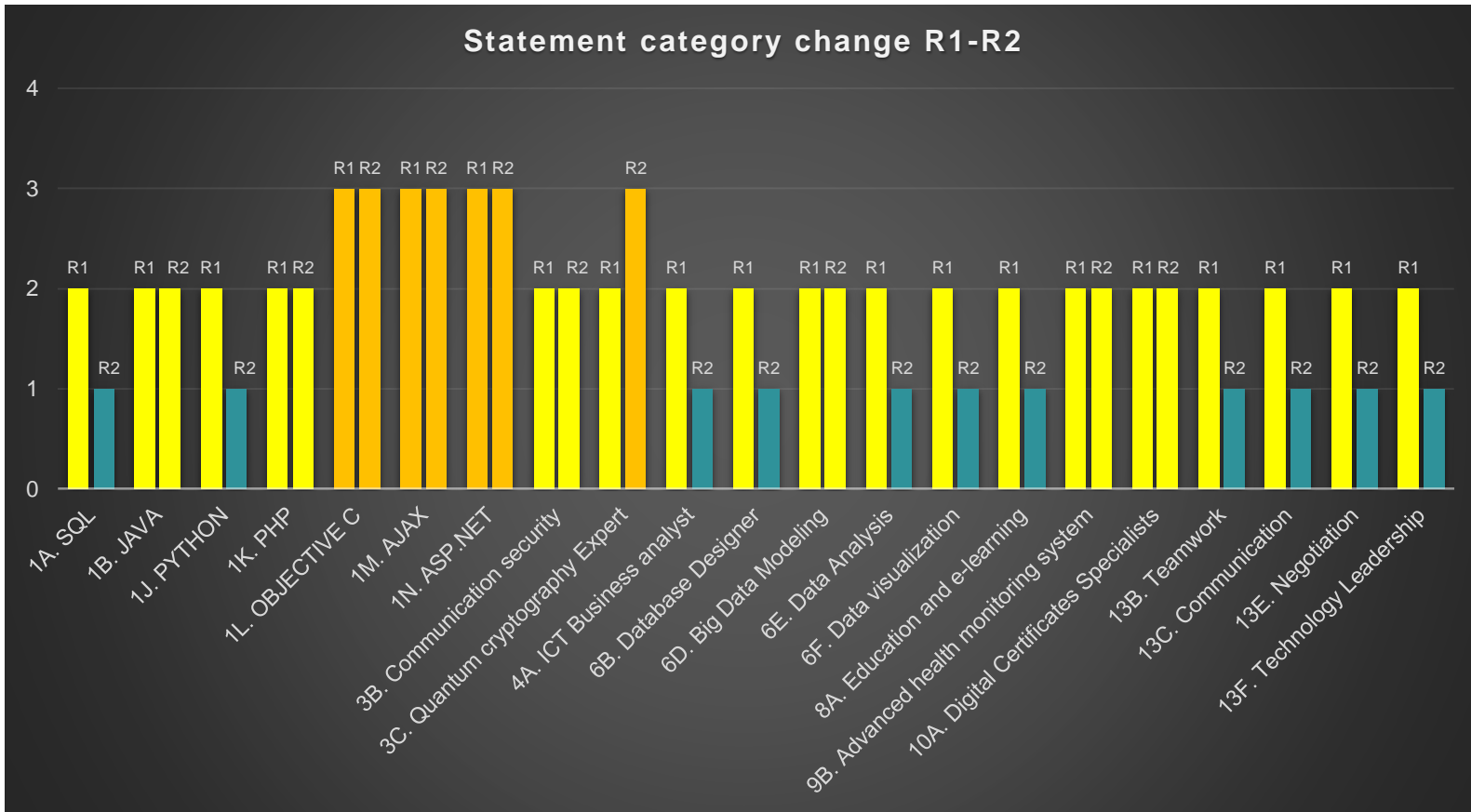
R2 Statements that changed categories from R1 or remained same



- Highly Phased In
- Moderately Phased In
- Moderately Phased out



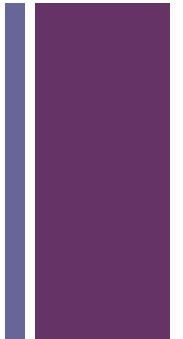
Delphi Round 2 - Results (4/4)





Final Results

(1/3)



Horizontal Sectors	
Programming	Device, Network and Cloud Infrastructure
HTML	Device Management
JavaScript	Networking Hardware
XML	Cloud Computing Infrastructure
C#	Cyber Security
SQL	ICT Security Specialist
PYTHON	



Final Results

(2/3)



Horizontal Sectors	
ICT Business Change	Artificial Intelligence
ICT Business Development Manager	Machine Learning
Business Intelligence	Automation in Robotics
ICT Business Analyst	Automated Reasoning
	Knowledge Representation
Data Science	Web services
Database Designer	Web Designer
Big Data Analytics	Web Development
Database Designer	
Data Analysis	
Data Visualization	



Final Results (3/3)

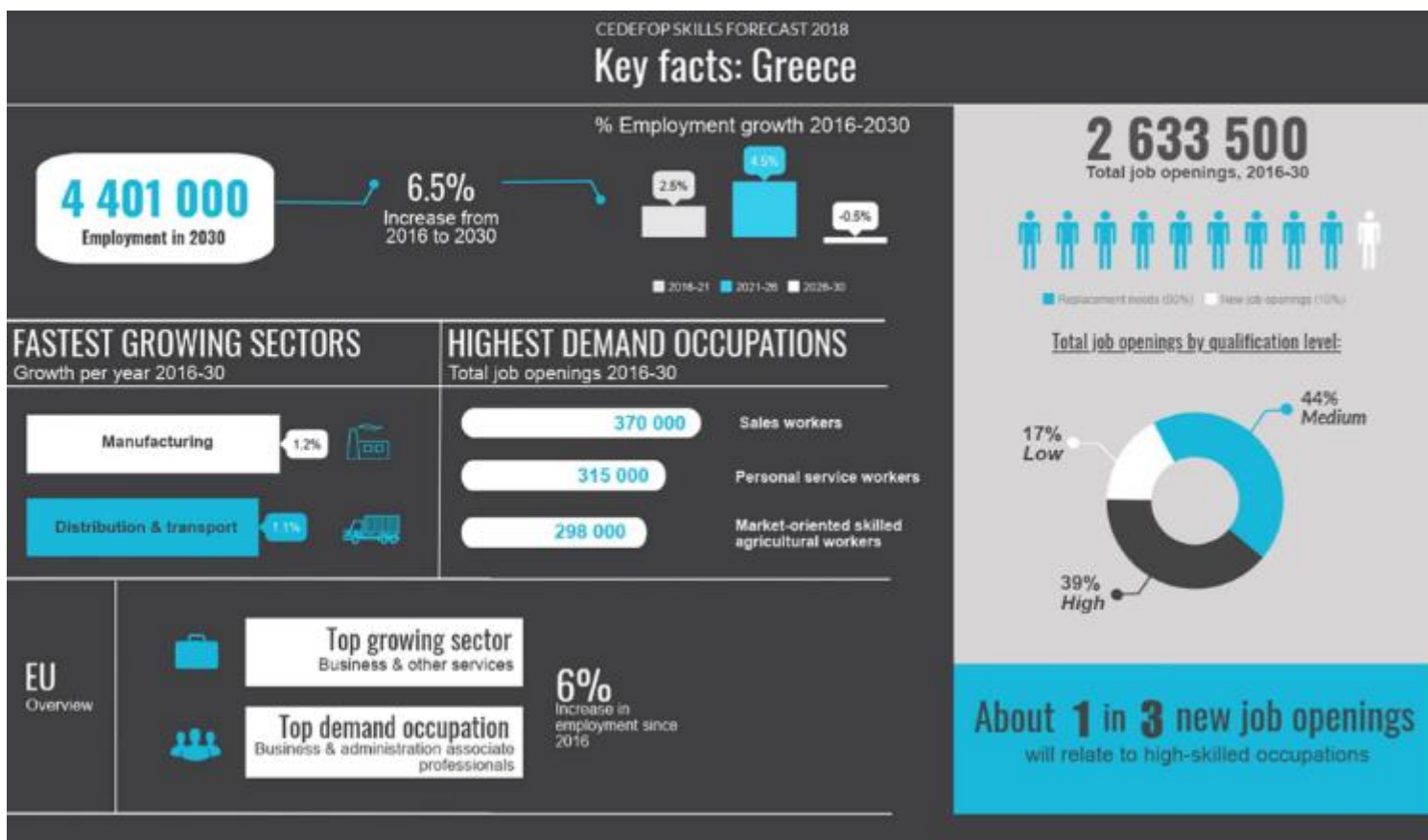
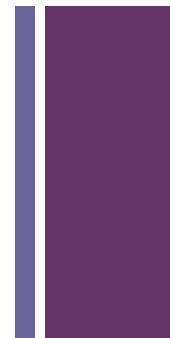


Vertical Sectors	
E-learning	Generating IT ancillary/soft/moderate skills
Education and e-learning	Problem Solving
E-health care	Self-Awareness
24-hour ICT-based care	Teamwork
E-payments	Communication
Mobile Phone Trading	Negotiation
	Technology Leadership



Key facts for Greece

Source: <https://www.cedefop.europa.eu/>





Thank you for your attention!

