

BUSINESS
FINLAND

INVEST IN
FINLAND



FINLAND 2021

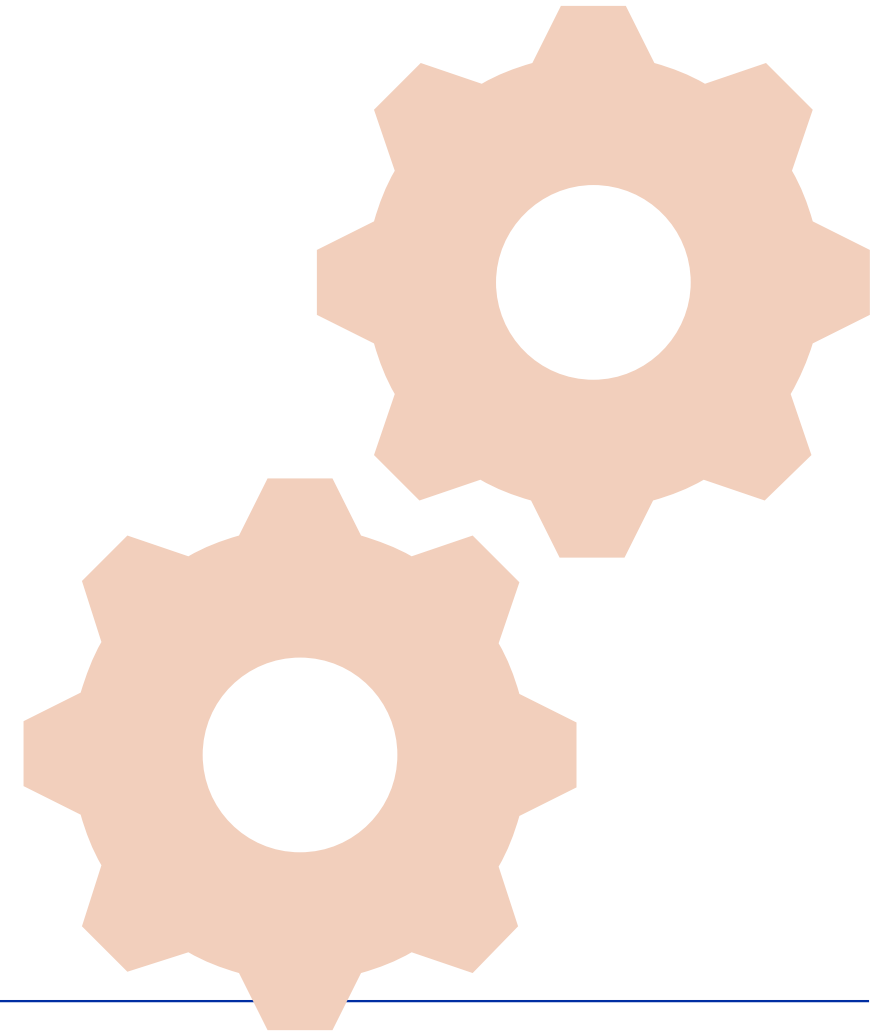


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TECHSKILLSATLAS™ FINLAND 2021

- Robust statistical information based on a quantitative, nationally and regionally representative survey
 - 4,000 interviews amongst working age people across mainland Finland
- Fieldwork conducted for MCJ Lemagnen Associates Ltd by its Finnish and global fieldwork partner, Kantar Oy, part of Kantar, the world's leading evidence-based insights and consulting company
- The study was co-funded by Business Finland and Helsinki Business Hub



CONTINUING THE TECHNOLOGY SUPERPOWER TRADITION

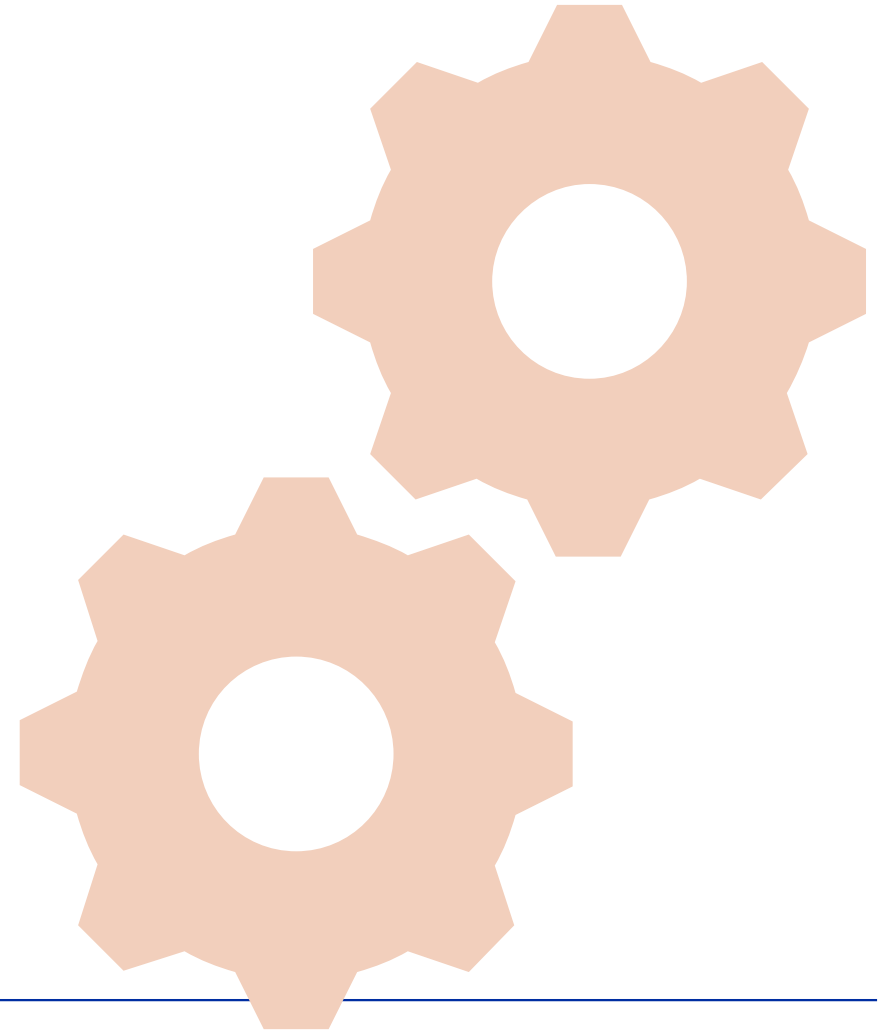
- Previous studies demonstrated that Finland is seen as 'good at tech'
- TechSkillsAtlas™ 21 shows Finland is getting even better at tech



DEFINITIONS

DEFINITIONS

- **TechSkillsAtlas™** focuses on what people do or have done – not on job titles!
- **Total resource** = all persons who are either working in a technical skills role now or who have done previously
- **Core resource** = persons who are presently working in a technical skills role
 - Technical work is a key aspect of their current job
- **Lapsed resource** = persons who have worked in a technical skills role in the past



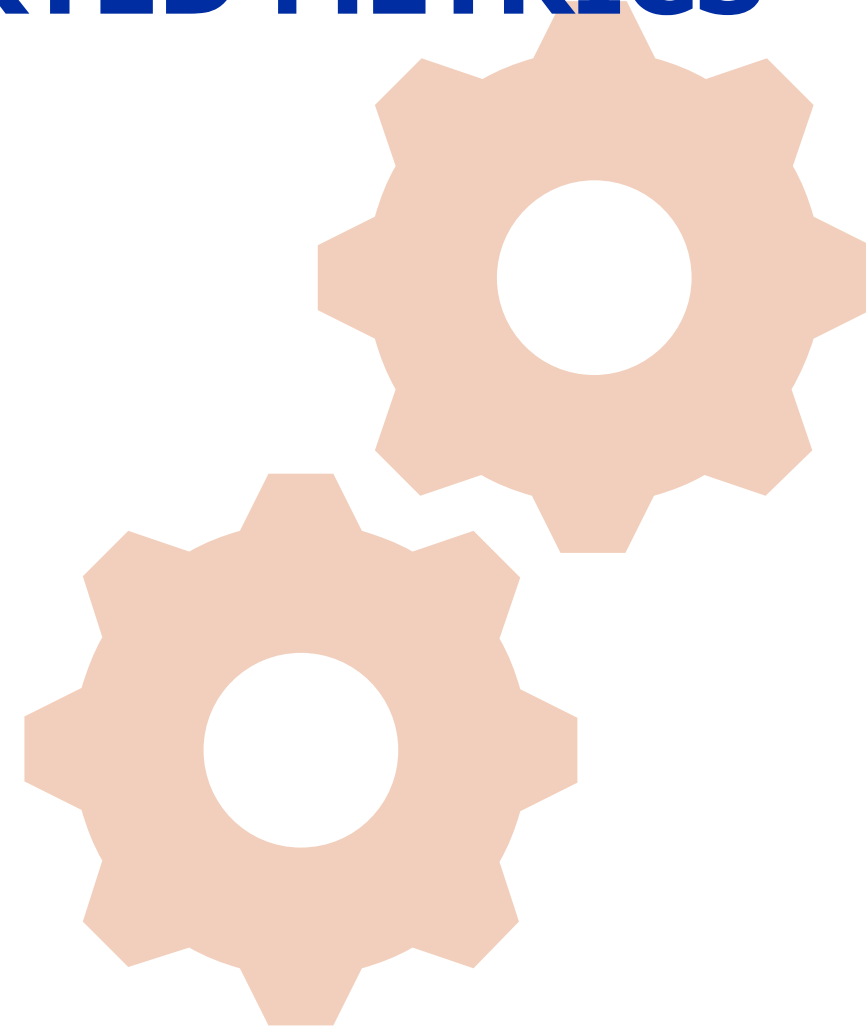
DEFINITIONS OF KEY REPORTED METRICS

- **Skills Resource Base**

- Size of the total, core and lapsed skills base
- Reported in thousands, statistically weighted data

- **Skills Concentration Coefficient©**

- The % concentration of technical skills within the location's workforce
- It shows a location's specialization in a particular skills area



FINNISH NUTS 2 REGIONS



TECHSKILLSATLAS™ FINLAND: 3 MAIN TECHNICAL SKILL SETS

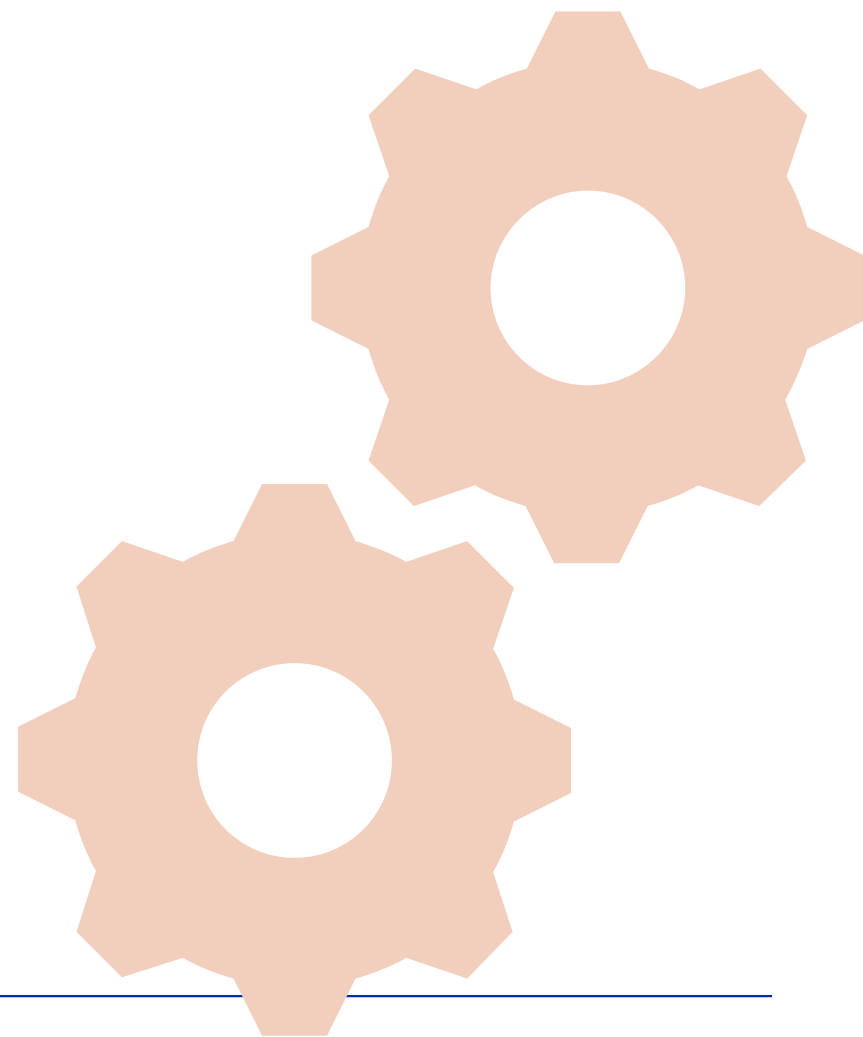
- **IT**
- **Engineering**
- **Healthtech**

- Reporting is available for:
 - *All 3 skills areas*
 - *Finland as a whole*
 - *Each of the 4 regions*

Key takeaways

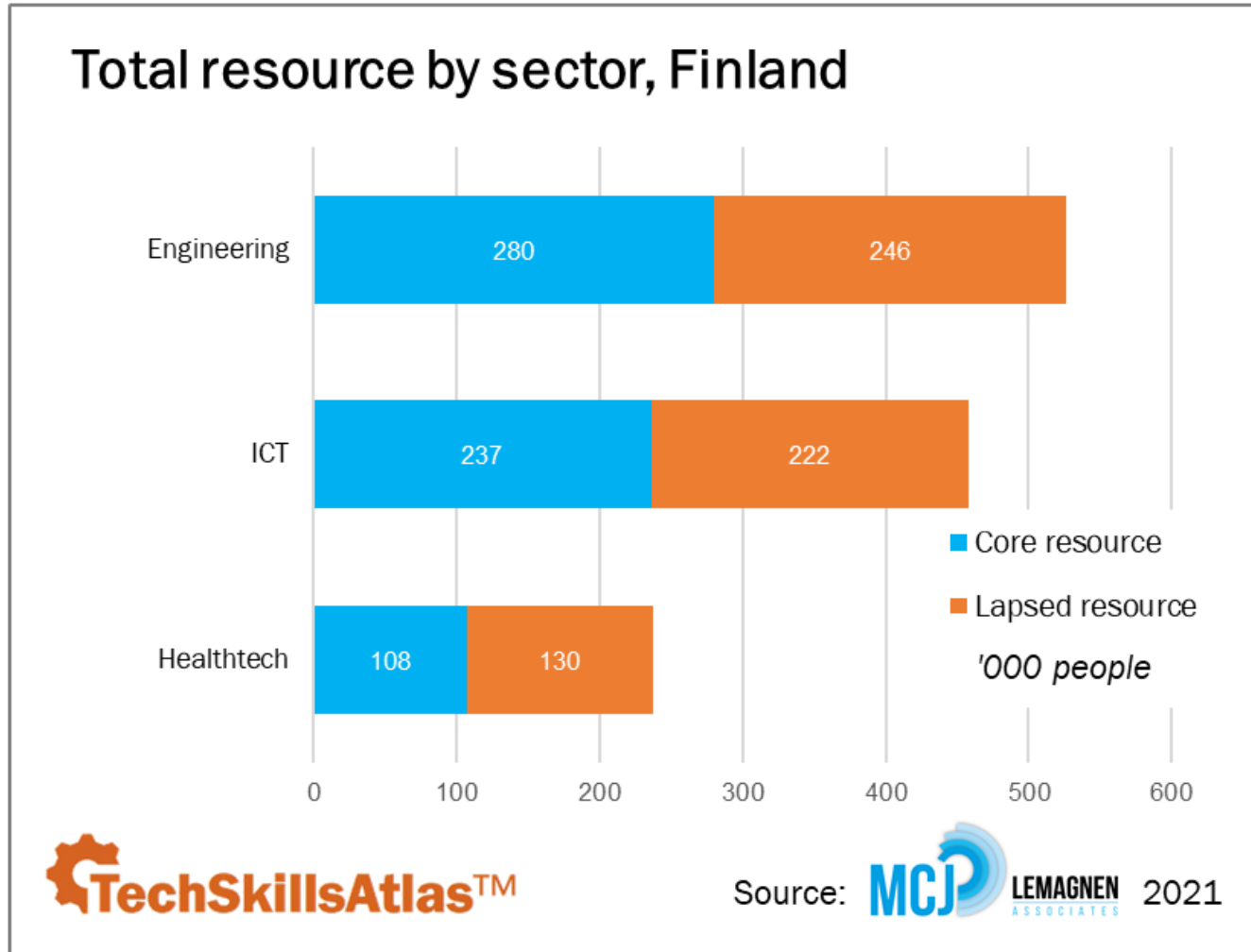
Key takeaways

- **Significant skills resources across all 3 technical skills areas**
- BUT: unemployment is very low amongst the core resource, meaning it's a tight labour market
 - New graduates and immigration bring new talent into the resource base
 - Significant unemployment rate amongst the lapsed resource from 7-19%
- A clear opportunity to leverage the lapsed resource base of professionals that have previously worked in a technical role
 - From a policy perspective, these are a clear potential target for training and life-long-learning
 - Benefiting employers, employees and society as a whole
 - Women are under-represented in all these technical skills areas
- Regionally, the largest resource base is mainly in Helsinki-Uusimaa
BUT:
 - Significant resources are available and accessible (by commuting travel) across the other regions
 - In particular in and around other key cities Oulu (Pohjois-Pohjanmaa), Tampere (Pirkanmaa) and Turku (Varsinais-Suomi),
 - Different counties also have high degrees of specialisation of different skills areas, there are pockets of expertise even in the smaller and more remote counties



Major skills headlines

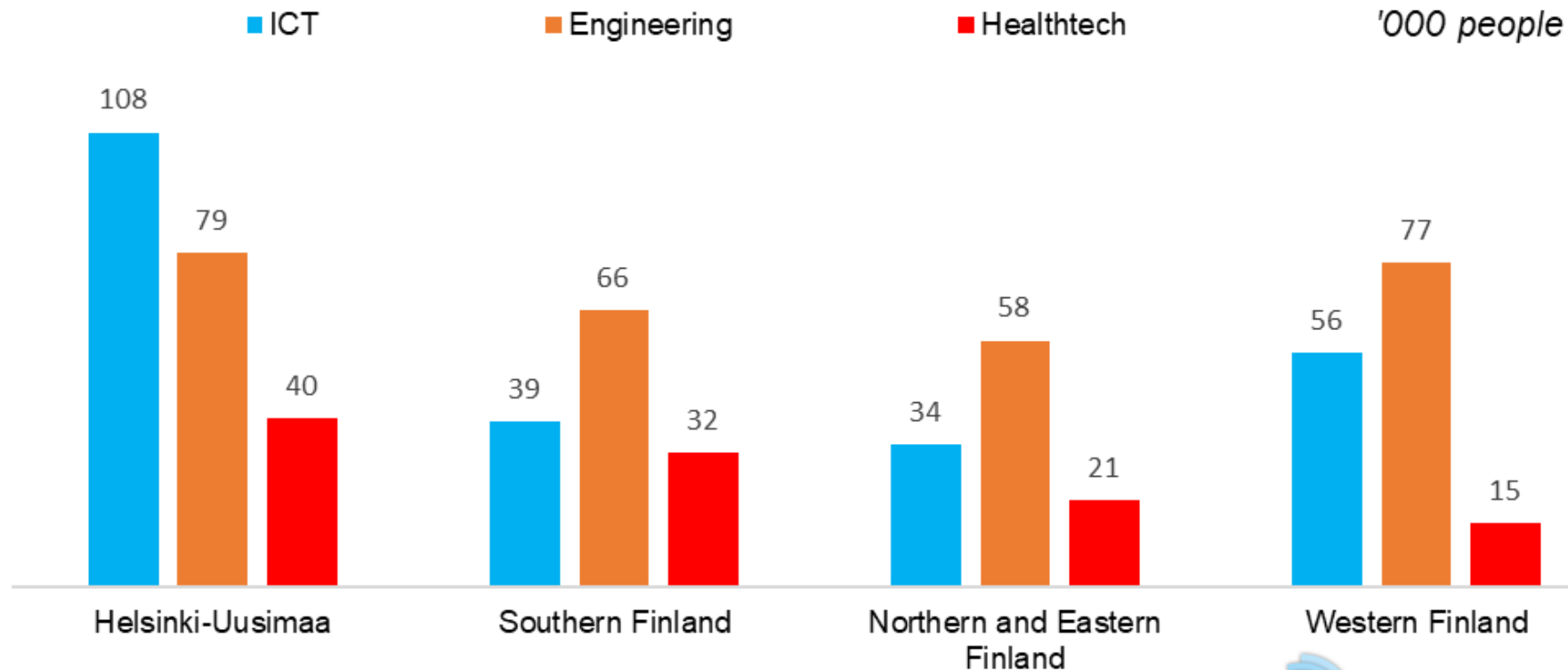
TOTAL RESOURCE BY SKILLS FIELD: FINLAND NATIONALLY



- Engineering and ICT have the largest resource bases
- They also have a high degree of overlap with each other
- Lapsed resource is significant in all areas: 47-54% of the total resource

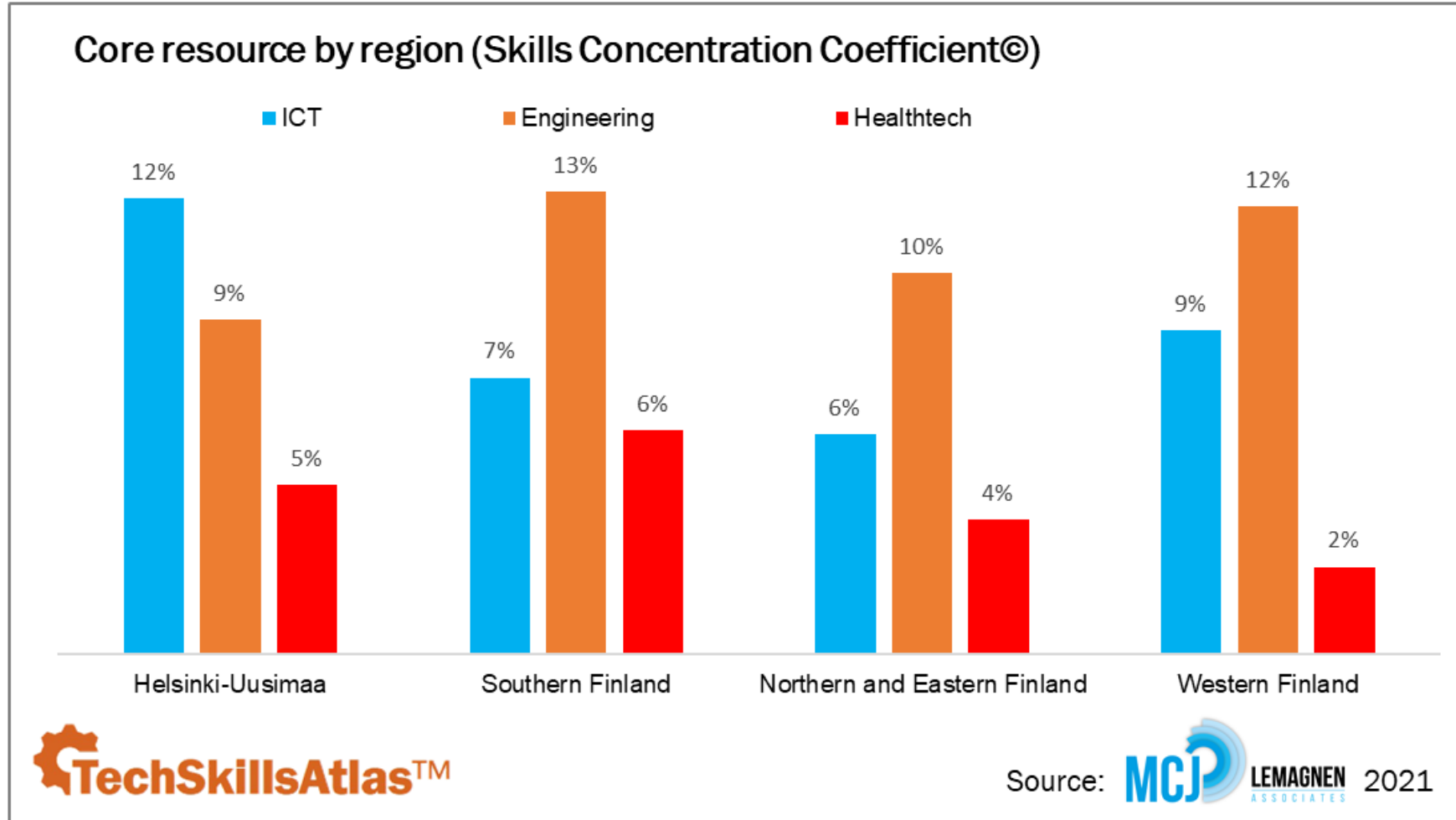
CORE RESOURCE BY SECTOR: REGIONAL BREAKDOWN

Core resource by region (number of people)



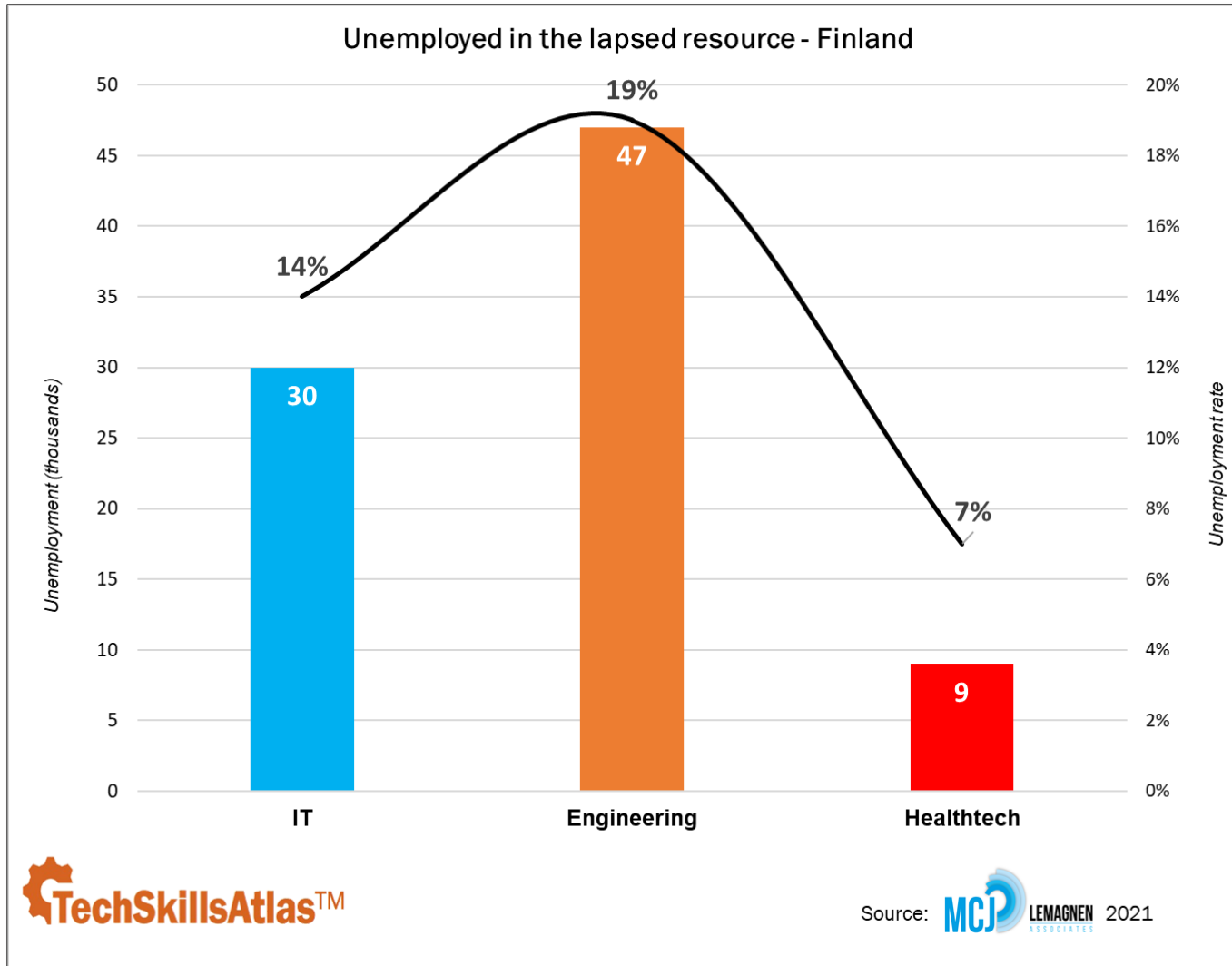
- Strength of the capital region
- Significant regional skills base
- City hotspots e.g. Tampere in IT & engineers, Turku in health & engineers, Oulu in IT

CORE RESOURCE BY SECTOR: REGIONAL BREAKDOWN USING OUR SKILLS CONCENTRATION COEFFICIENT©



- Engineers and technical IT skills are well established across the country
- Healthtech skills sets are scarcer
- Non-capital regions can have higher degrees of concentration, notably for engineering

SIGNIFICANT UNUSED TALENT IS AVAILABLE



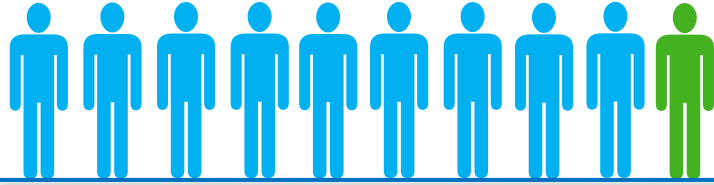
- 7-19% unemployment amongst lapsed resource
 - of which 5-15% are looking for work
- Unemployment rate is generally higher in the youngest and oldest age groups
- Financial support available for hiring and upskilling unemployed

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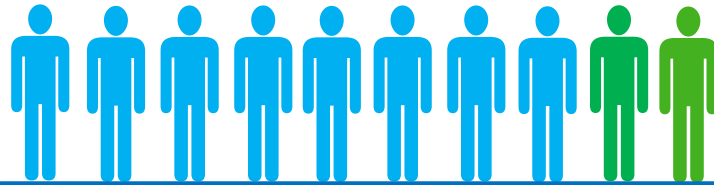
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IT SKILLS DEEP DIVE

IT SKILLS: CORE RESOURCE OF 237,000 TECHNICAL IT PROFESSIONALS



9% work in a technical ICT role



A further 9% have worked in a technical ICT role in the past

18% of the workforce in Finland has technical IT skills

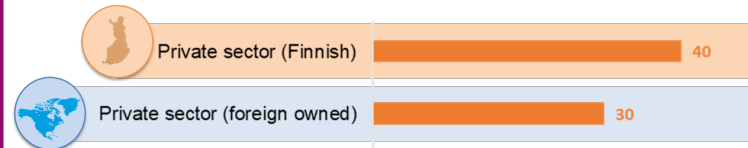
- **83% have advanced programming expertise**
- **14% of 'lapsed' talent is unemployed**
- **Young profile (50% under 34) but plenty of experience (33% have more than 10 years' experience)**

Interdisciplinary skills



A high percentage of the workforce has other technical skills experience

30% work a foreign-owned company



77% have at least a Bachelor's level qualification



Helsinki-Uusimaa is the largest concentration but there are good resources across the country

46% live in Helsinki-Uusimaa

23% live in Western Finland

Accessible commuting bases from nearby counties

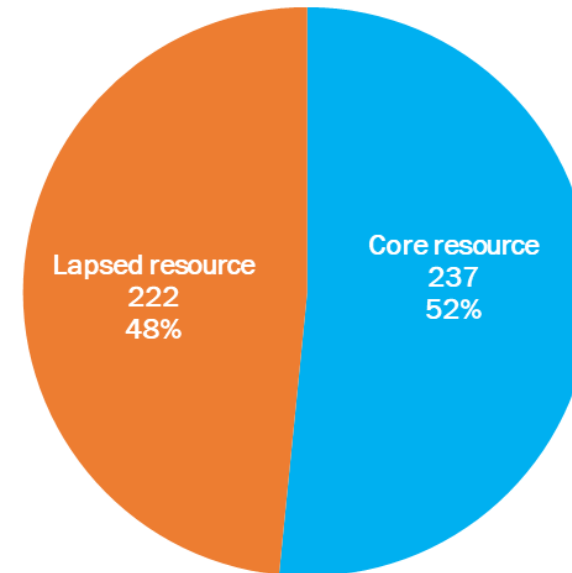


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UNTAPPED POTENTIAL AMONGST LAPSED RESOURCE

- Total resource 459,000
 - **Core resource of 237,000** are currently working in technical role
 - **But 222,000** are no longer working in technical role
- Extensive programming resources
 - **83% of core resource** have advanced programming skills

459,000 Technical IT professionals in Finland

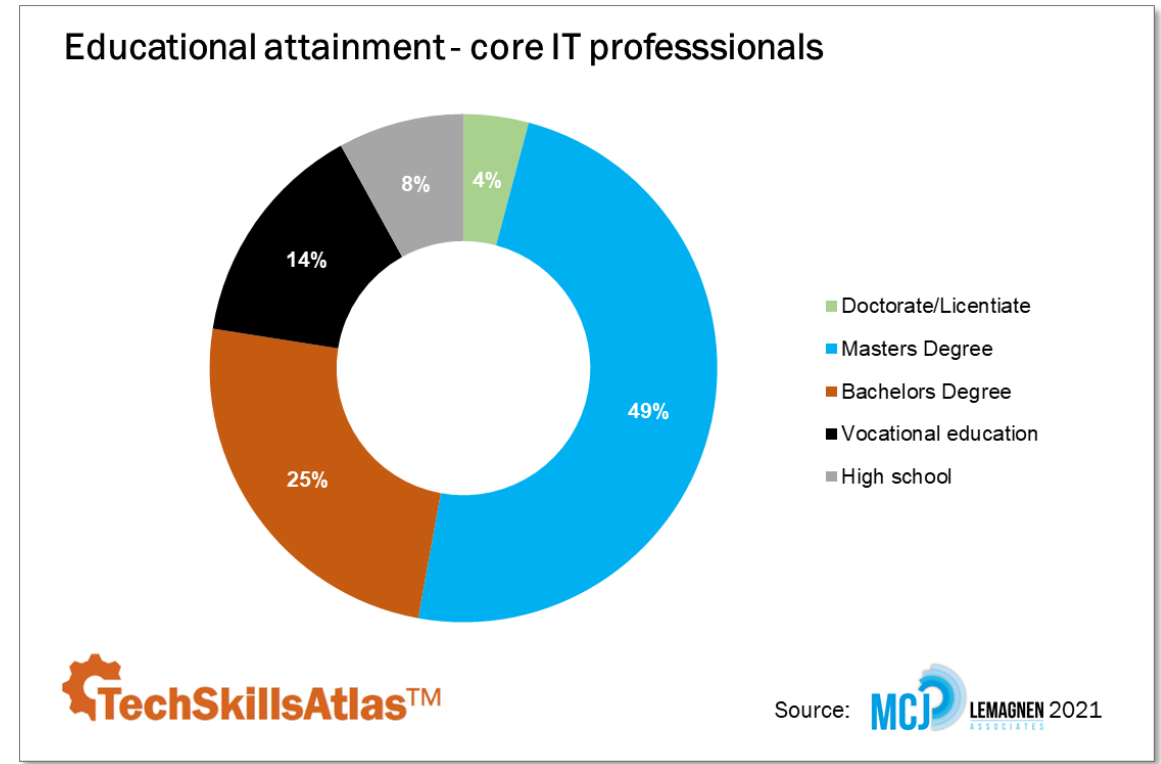
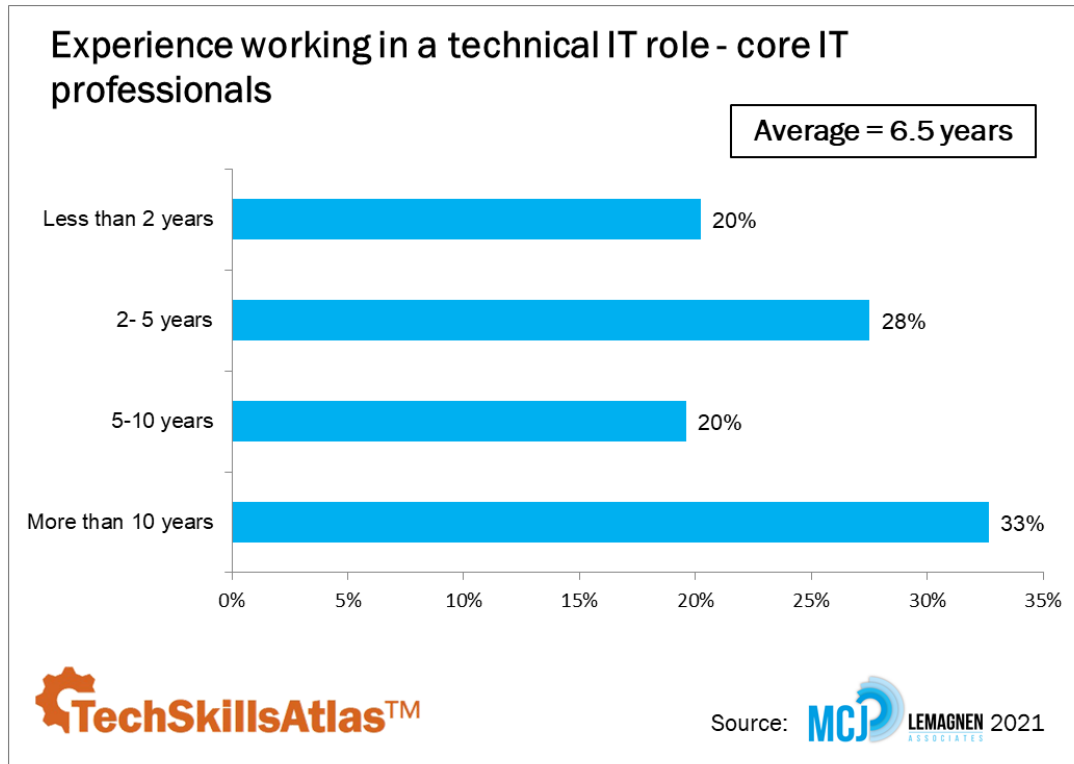


'000 professionals

 **TechSkillsAtlas™**

Source:  **LEMAGNEN ASSOCIATES** 2021

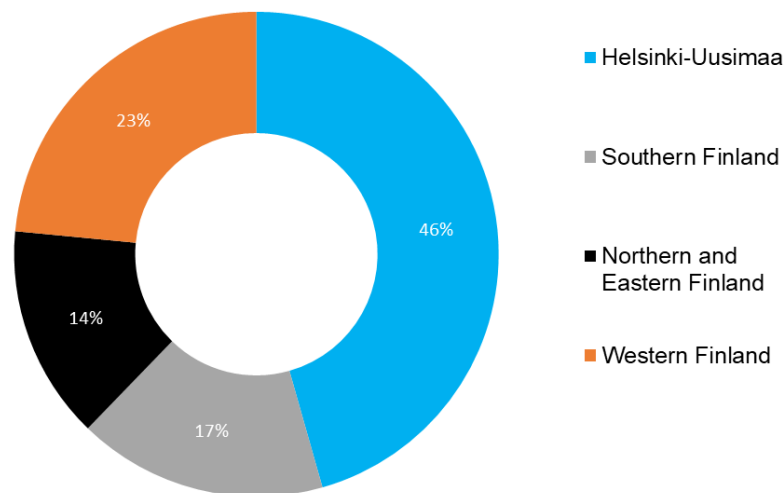
HIGHLY QUALIFIED WITH A GREAT MIX OF EXPERIENCED AND YOUNGER TALENT



- **Experience:** 53% have worked in a technical IT role for 5 years or less...33% for more than 10 years!
- **Age:** 50% are aged 18-34 and 41% are 35-54
- **New talent pipeline:** 4,100 new ICT tertiary education graduates per year

CORE PROFESSIONALS' REGION OF RESIDENCE

Core technical IT professionals by region of residence

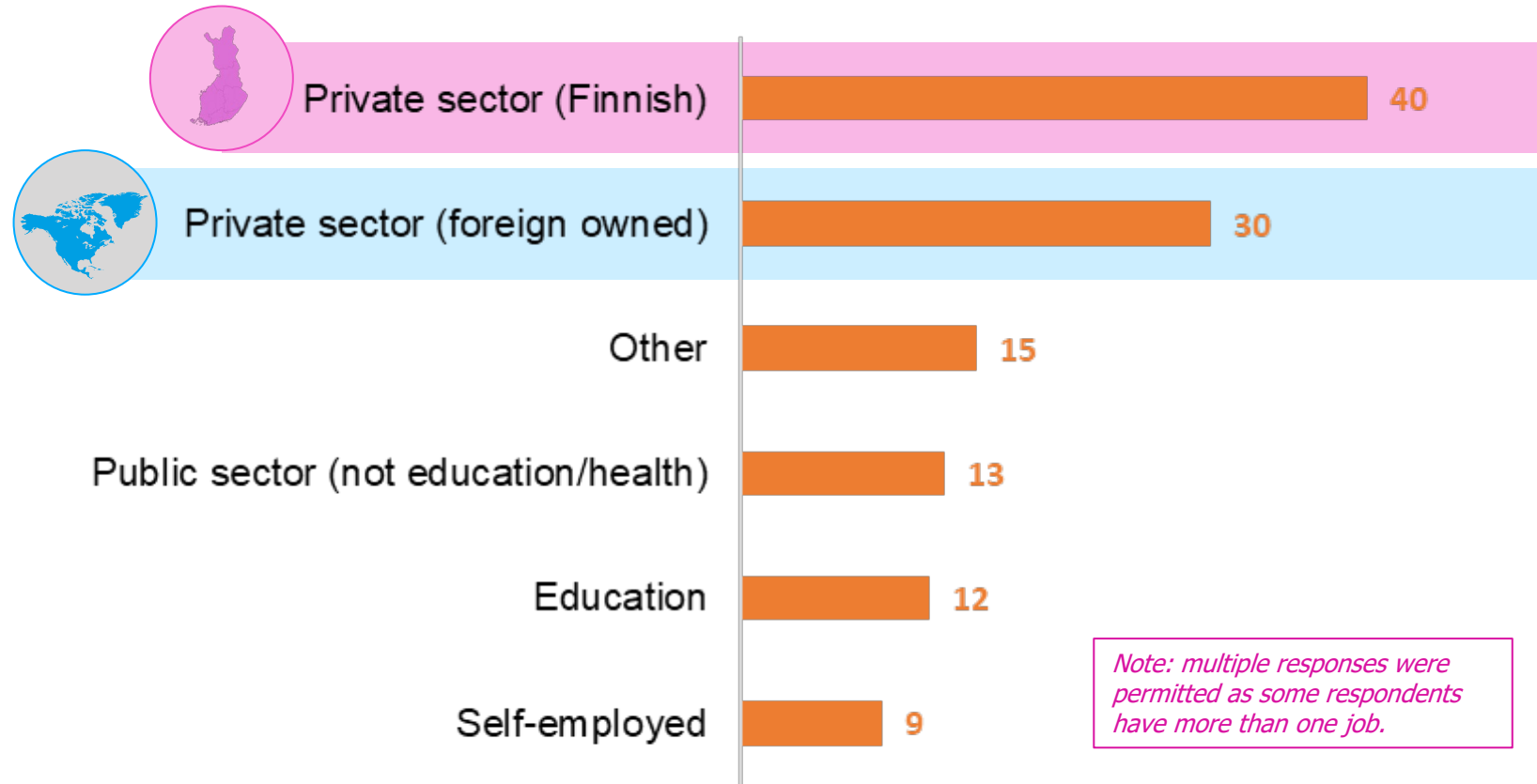


Source:  2021

- Wherever you are in Finland, there is significant accessible resource
- 23% live in Western Finland
 - Pirkanmaa (Tampere) in Western Finland has 13% share of core resource

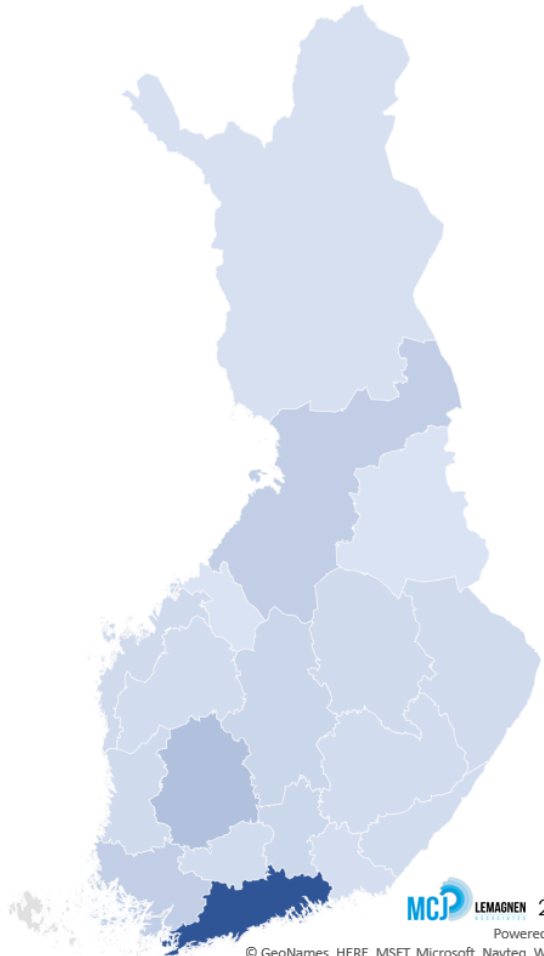
30% EMPLOYED BY FOREIGN OWNED COMPANIES

- 30% work in private companies with headquarters outside Finland



Number of technical IT professionals by county

Total Resource (thousands) 1 199

Technical IT professionals:
MCJ Skills Concentration Coefficient© %

Skills Concentration Coefficient % 5 23

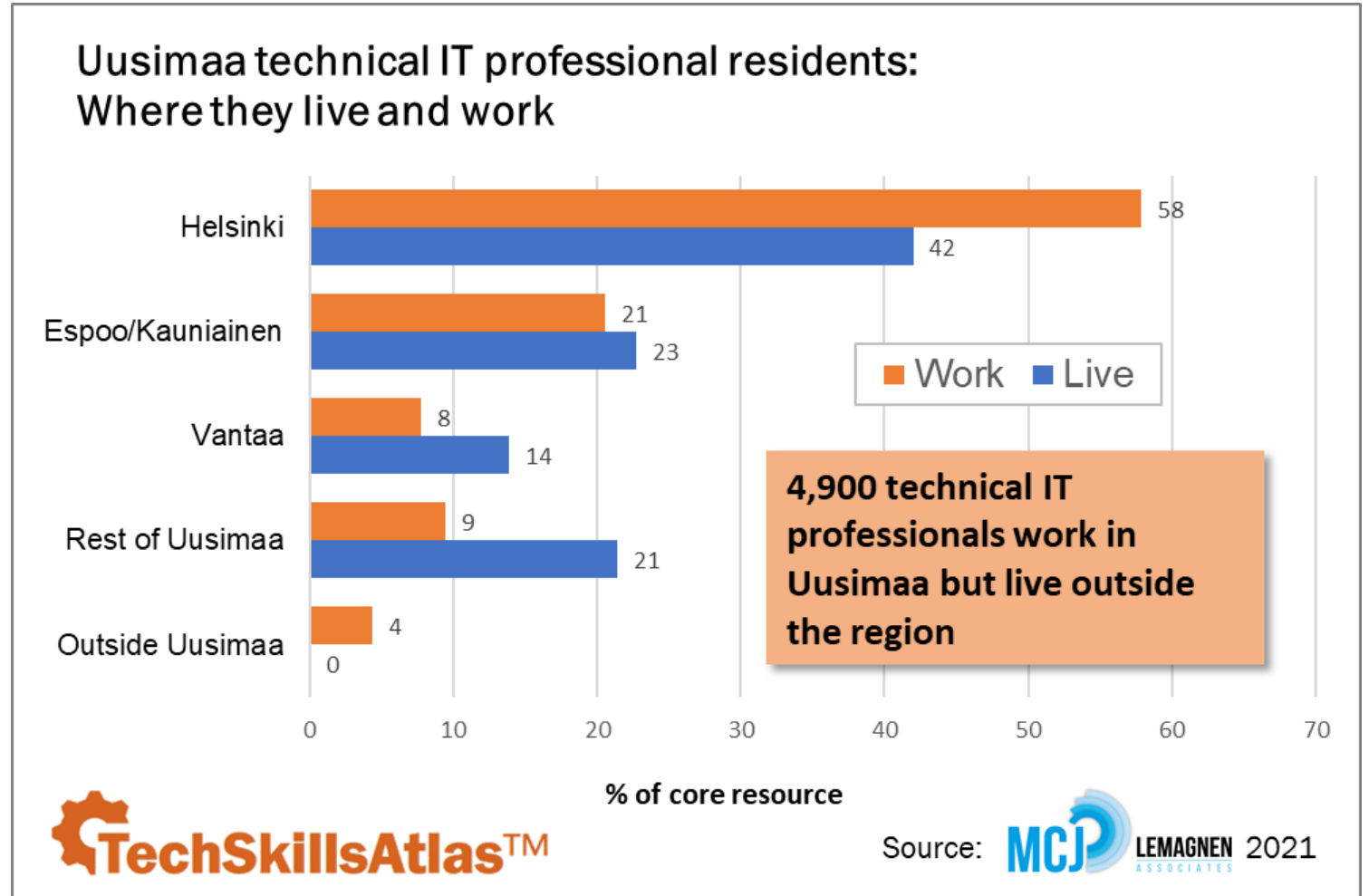


COUNTY MAPS

- Map on the left (blue) shows the large resource bases in Finland's largest city area
- Map on the right (brown) shows there are pockets of expertise around the country
 - e.g. high levels of specialisation in Pirkanmaa (Tampere) and Päijät Häme (Lahti)

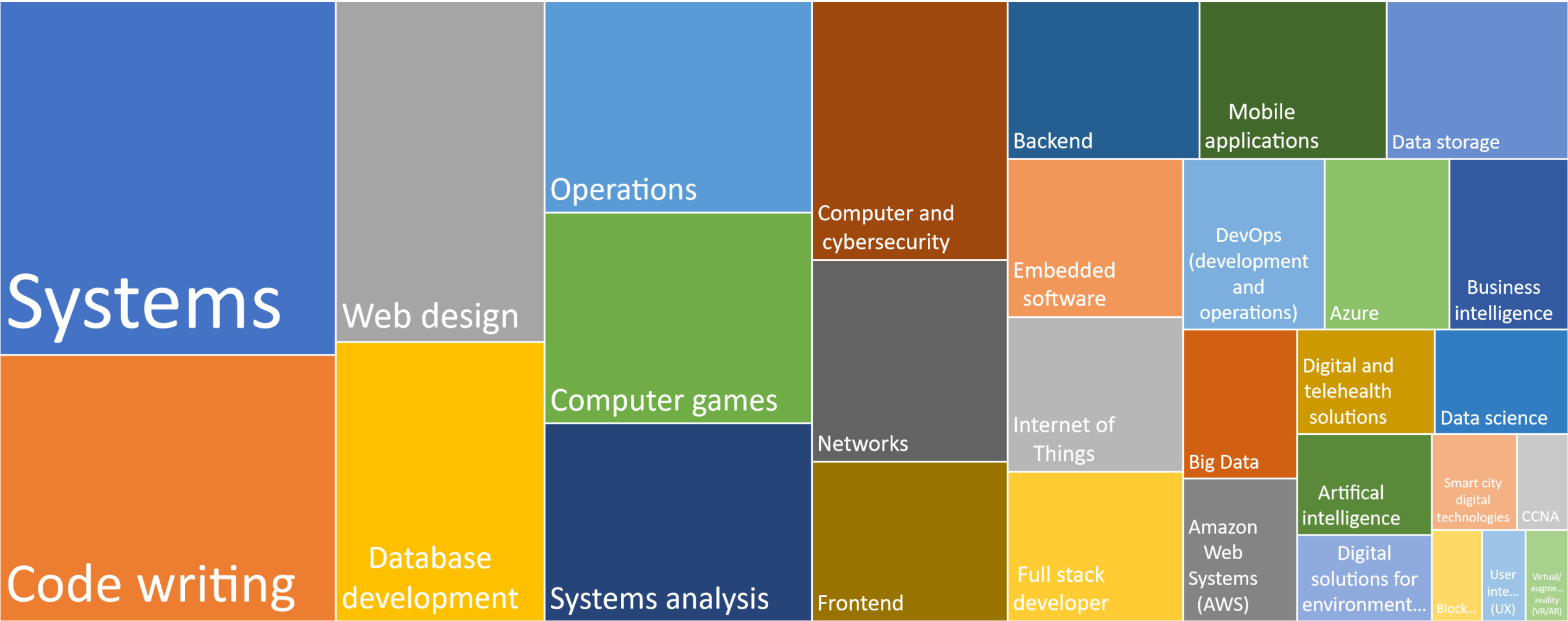
HELSINKI-UUSIMAA CORE RESOURCE REGIONAL BREAKDOWN

- 42% of Uusimaa core resource lives in Helsinki City
- 60% work there
- 4,900 people commute **IN** from other regions
- 4,600 commute **OUT** to other regions

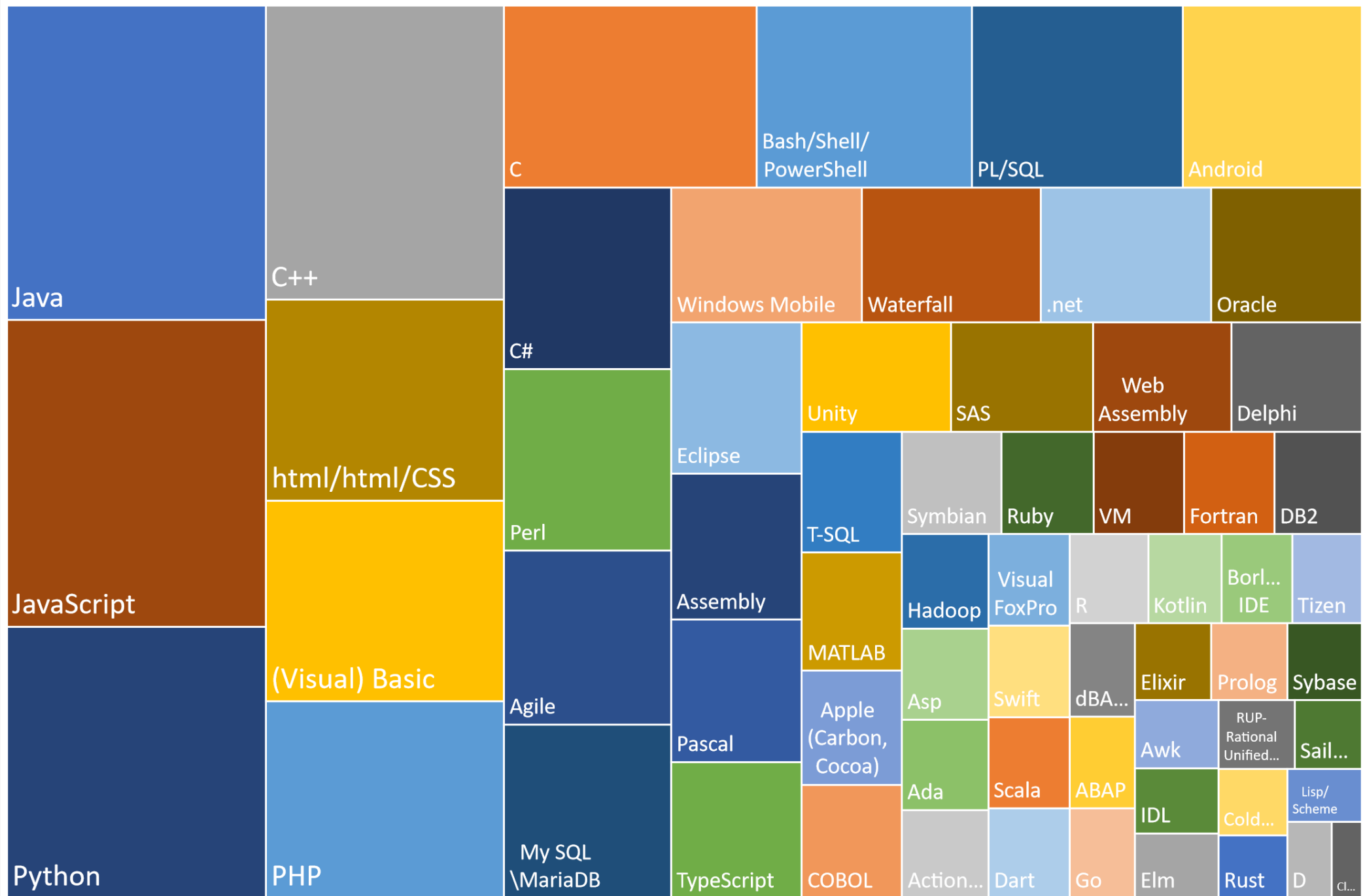


FINLAND TICKS ALL THE DIGITAL TALENT BOXES

Specialist IT skills expertise - Finland



Programming and application development expertise



MULTI-SKILLED TALENT POOL

% of core IT professionals with other technical skills experience

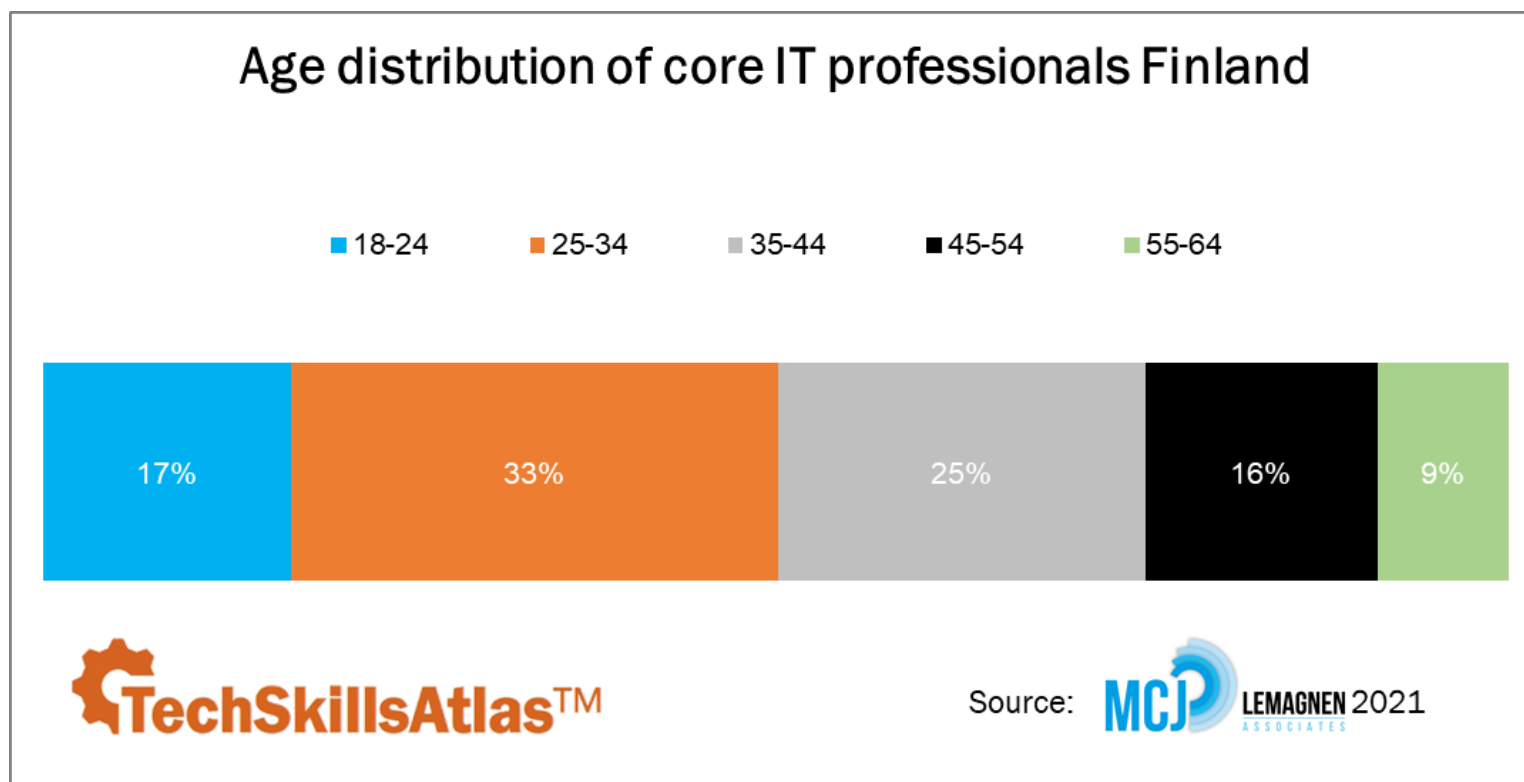


Source:  LEMAGNEN ASSOCIATES 2021

- High proportions of core technical IT professionals have skills across different sector verticals
- Strongest link between IT and engineering

ATTRACTING YOUNG TALENT

- 50% are aged 18-34 and 41% are 35-54

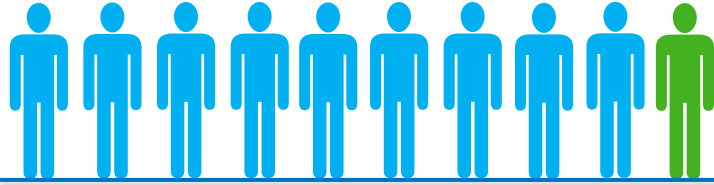


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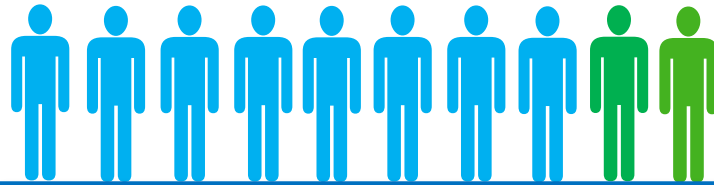
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ENGINEERING SKILLS DEEP DIVE

ENGINEERING SKILLS : HEADLINE DATA



11% work in an engineering role

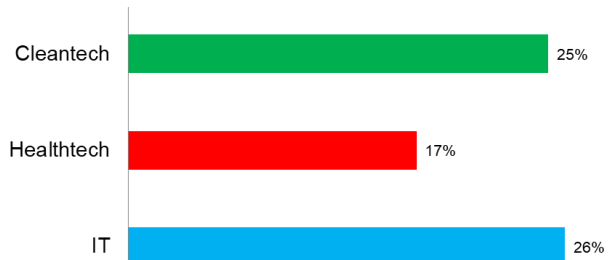


A further 9% have worked in an engineering role in the past

Finland has a rich and diverse engineering heritage and talent base

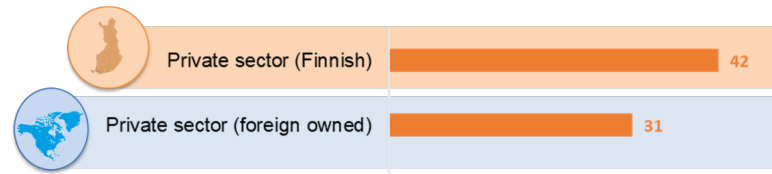
- Key specialisms in electronic/electrical, manufacturing, mechanical, civil and chemicals
- 19% of 'lapsed' talent is not in work
- Attracting new talent 12% are aged 18-24
- Experience – 50% have more than 10 years' experience

Interdisciplinary skills



A high percentage of the workforce has other technical skills experience

31% work a foreign-owned company



66% have at least a Bachelor's level qualification



Plenty of engineering resource across the country

28% of the core talent pool live and work in Helsinki-Uusimaa

28% live in Western Finland

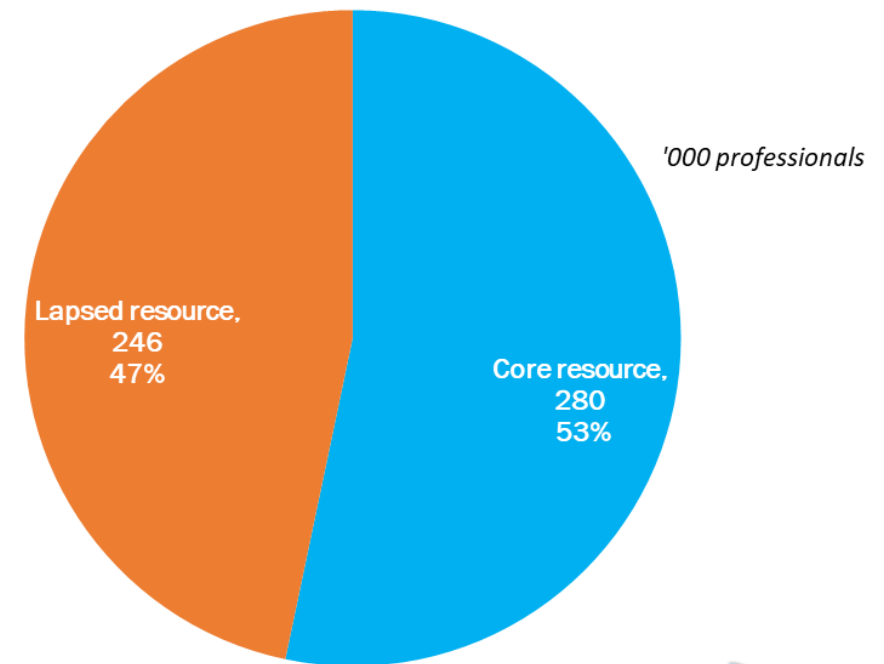


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UNTAPPED POTENTIAL AMONGST LAPSED RESOURCE

- Total resource 526,000
 - Core resource of 280,000 are currently working in technical role
 - **But 246,000 are no longer working in technical role**
 - **19% of the lapsed resource is not in work = 47,000**

526,000 Technical engineering professionals
Finland

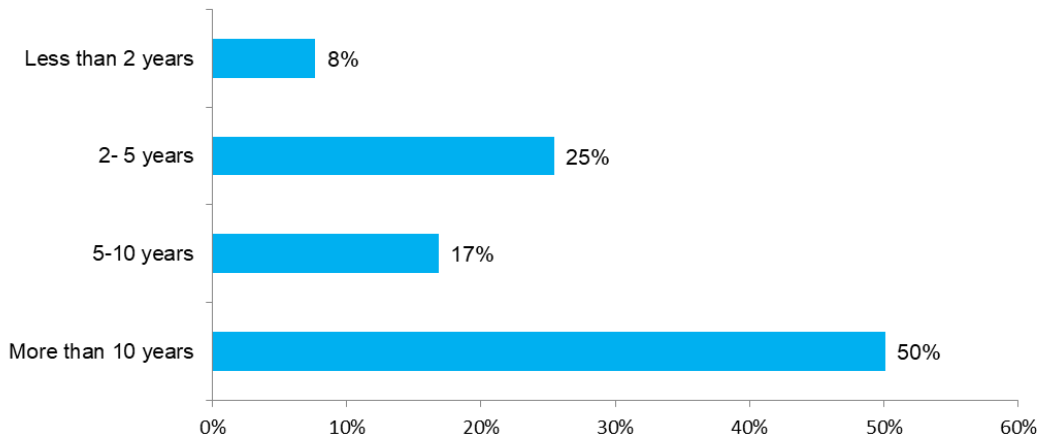


 TechSkillsAtlas™

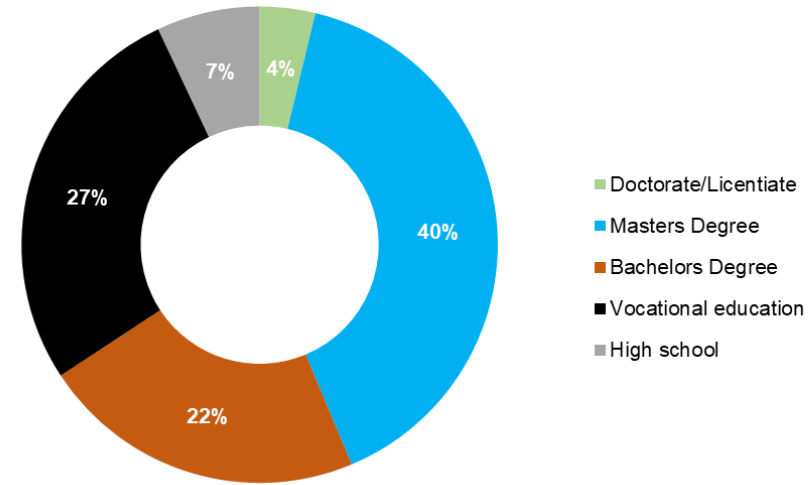
Source:  MCP LEMAGNEN ASSOCIATES 2021

HIGHLY QUALIFIED WITH A GREAT MIX OF EXPERIENCED AND YOUNGER TALENT

Experience working in a technical engineering role-
core professionals - Finland



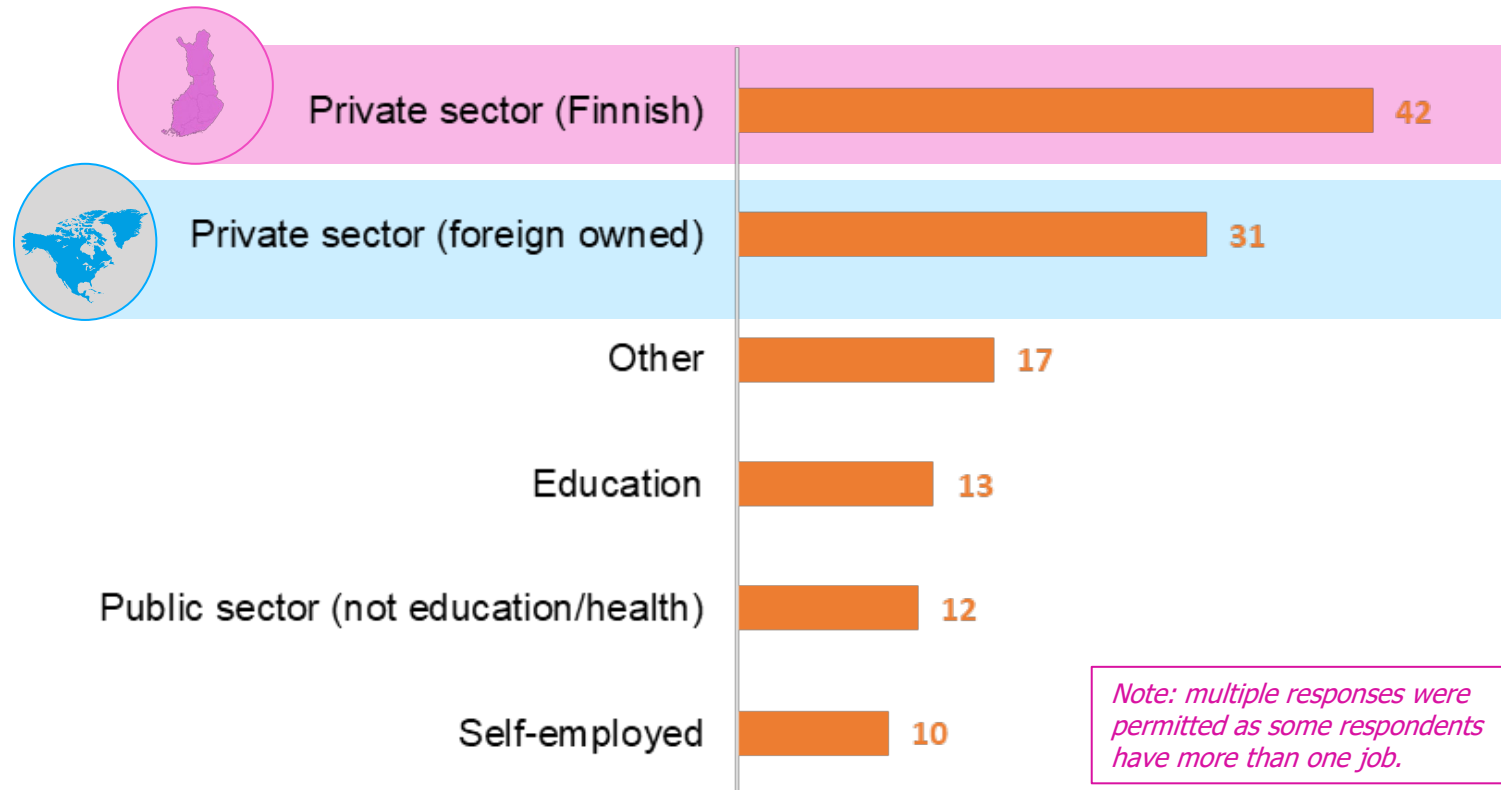
Educational attainment - core technical engineering
professionals



- **Experience:** 33% have worked in a technical IT role for less than 5 years...50% for more than 10 years!
- **New talent pipeline:** 9,600 new engineering tertiary education graduates per year across Finland

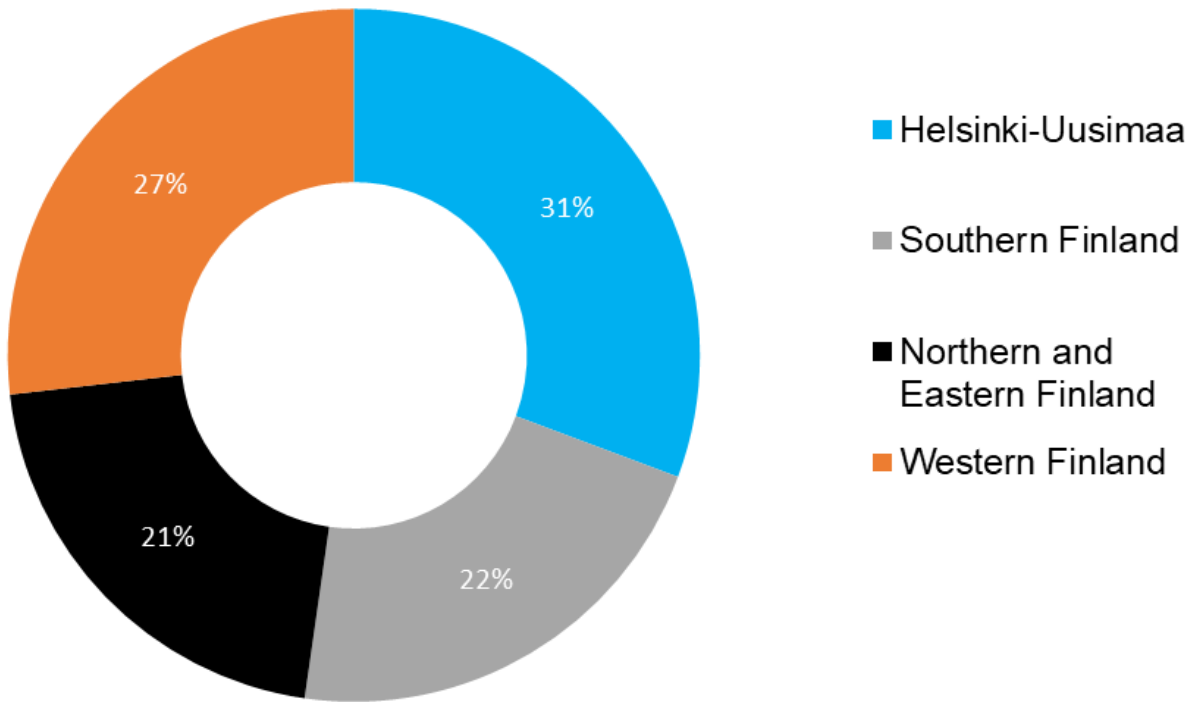
EMPLOYMENT PROFILE OF CORE RESOURCE

- 31% work in private companies with headquarters outside Finland



ENGINEERING EXPERTISE ACROSS FINLAND

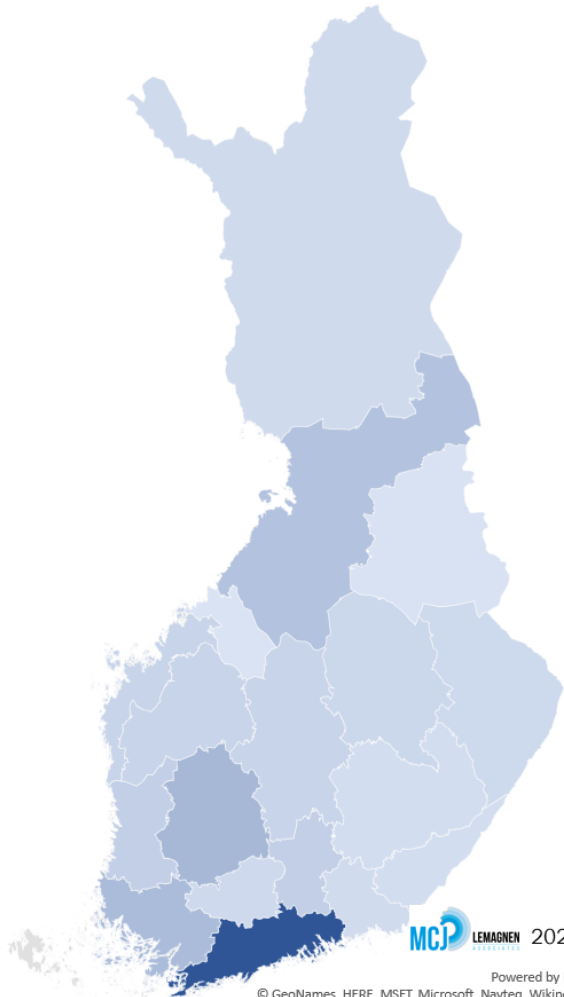
Total technical engineering professionals by region of residence



- Helsinki is the largest base of engineering professionals in Finland
- But strong regional concentrations linked to long standing industry clusters

Number of engineering professionals by county

Total Resource (thousands) 4 162

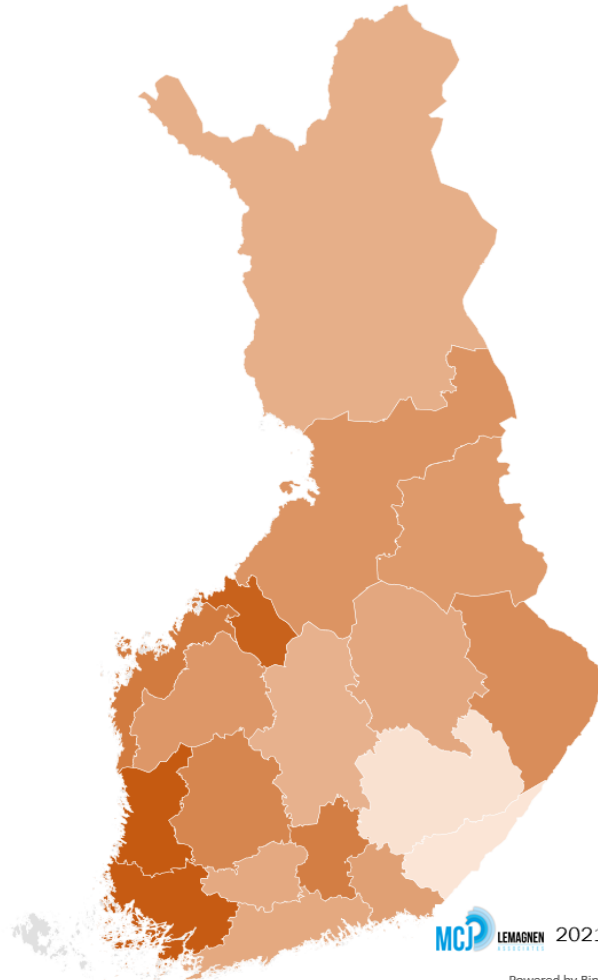


MCP LEMAGNEN 2021

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Core engineering professionals: MCJ Skills Concentration Coefficient© %

Smoothed average 18-21 5 15



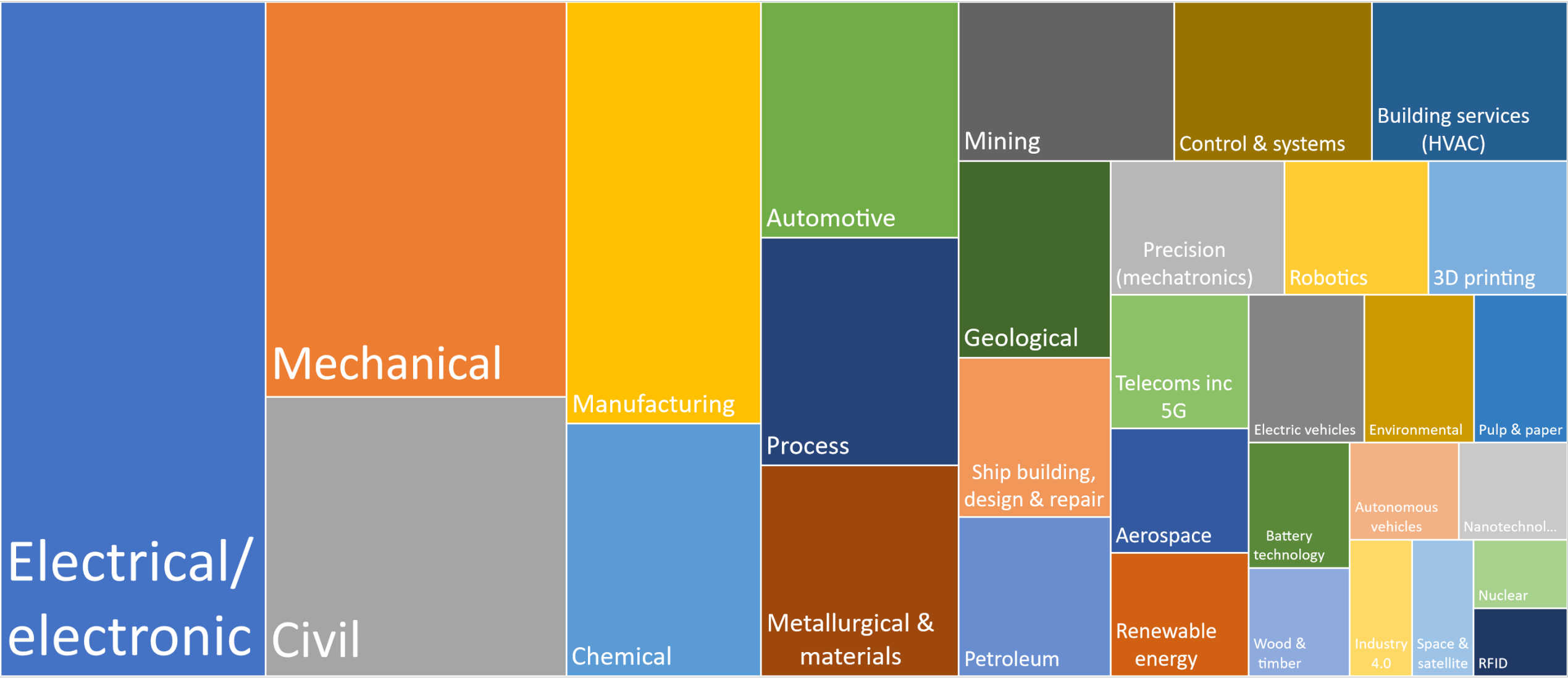
MCP LEMAGNEN 2021

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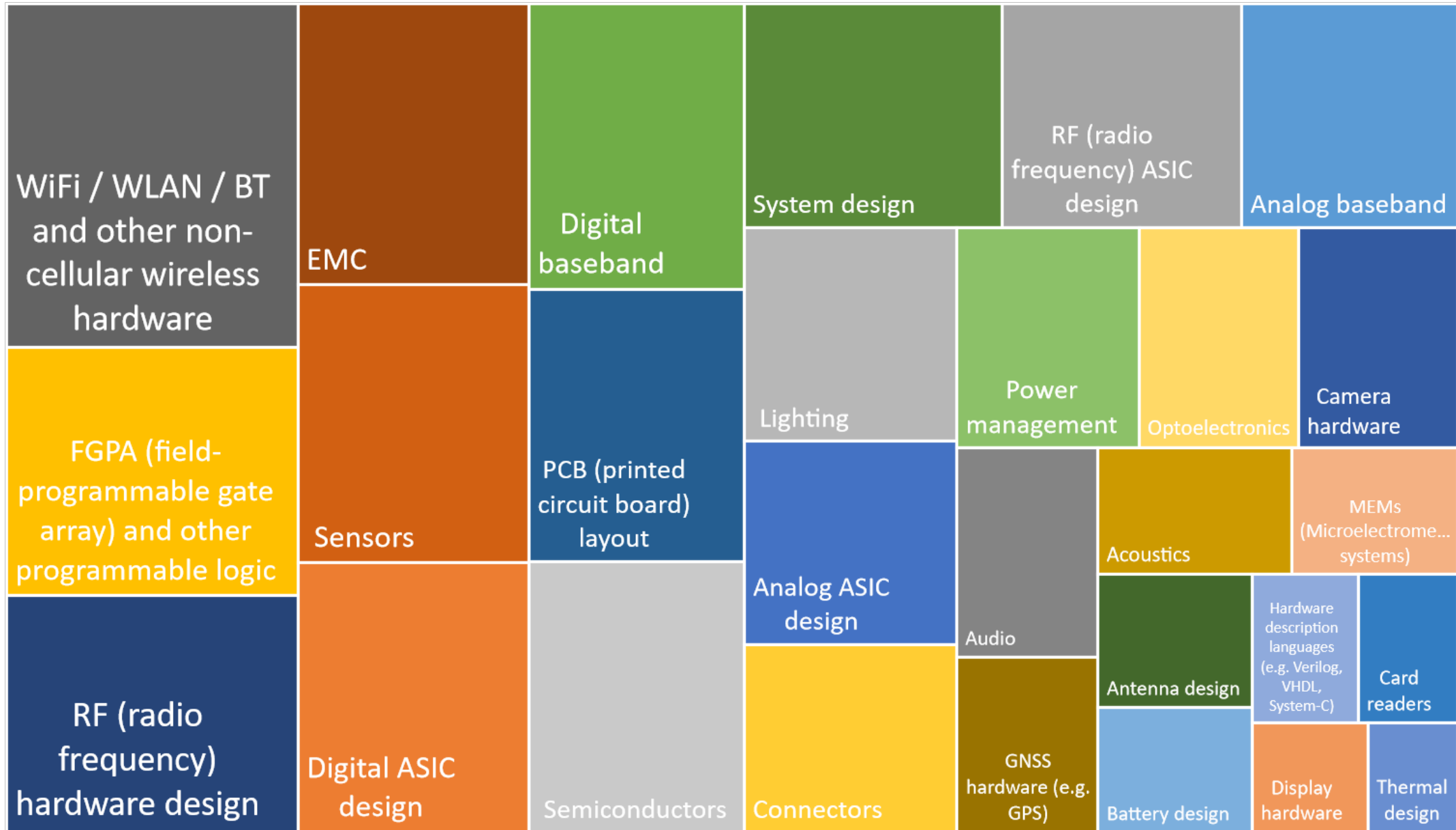
COUNTY MAPS

- Map on the left (blue) shows the large resource bases in Finland's largest city area
- Map on the right (brown) shows there are pockets of expertise around the country

Specialist engineering expertise - core professionals - Finland

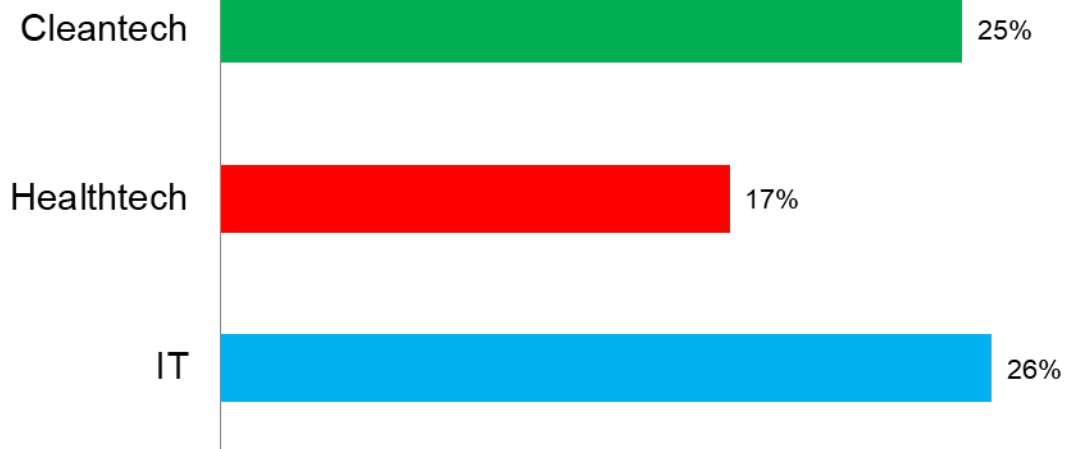


Electronics specialisms - core technical engineers - Finland



MULTI-SKILLED ENGINEERING COMPETENCE

% of core engineering professionals with other technical skills experience - Finland



 TechSkillsAtlas™

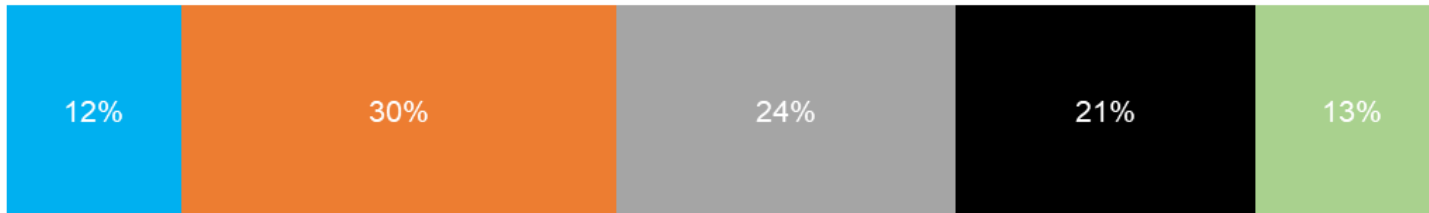
Source:   2021

- Core engineering professionals have good technical knowhow of other fields
- Strong overlap with IT and cleantech

ENGINEERING STILL ATTRACTS YOUNGER TALENT

Age distribution of core technical engineering professionals - Finland

■ 18-24 ■ 25-34 ■ 35-44 ■ 45-54 ■ 55-64



Source:  LEMAGNEN 2021
ASSOCIATES

- 42% are aged 18-34
- Plenty of experience too

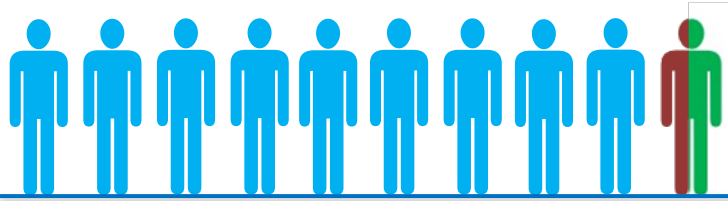
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HEALTHTECH SKILLS DEEP DIVE

HEALTHTECH SKILLS: CORE RESOURCE OF 108,000

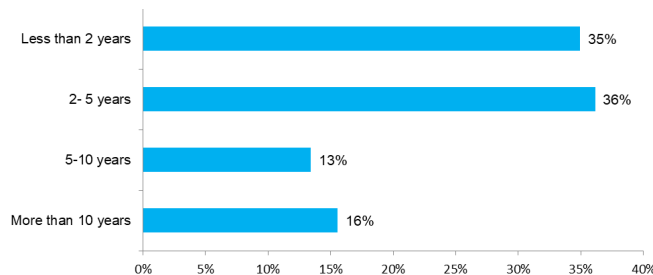
4% work in a healthtech role



A further 5% have worked in a healthtech role in the past

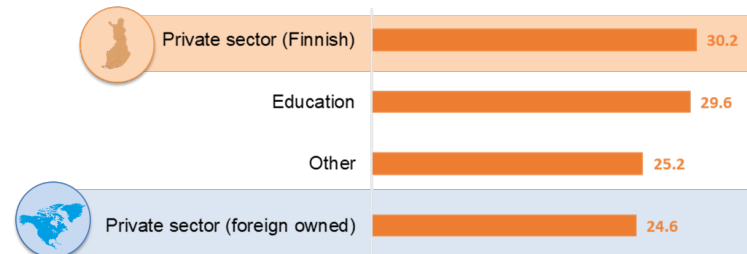
9% of the workforce in Finland has technical healthtech skills

- Key specialisms include biochemistry, bioinformatics, genetics, microbiology, molecular biology, histology, immunology
- 7% of 'lapsed' talent is not in work



Experienced and new talent is available

25% work a foreign-owned company



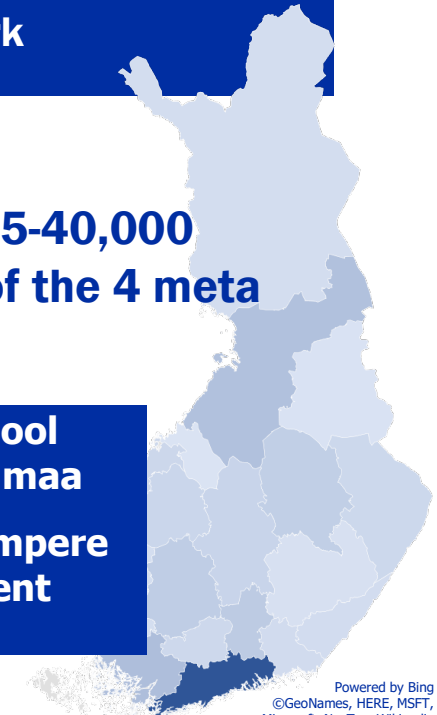
72% have at least a Bachelor's level qualification



Core resource of 15-40,000 available in each of the 4 meta regions

36% of the talent pool live in Helsinki-Uusimaa

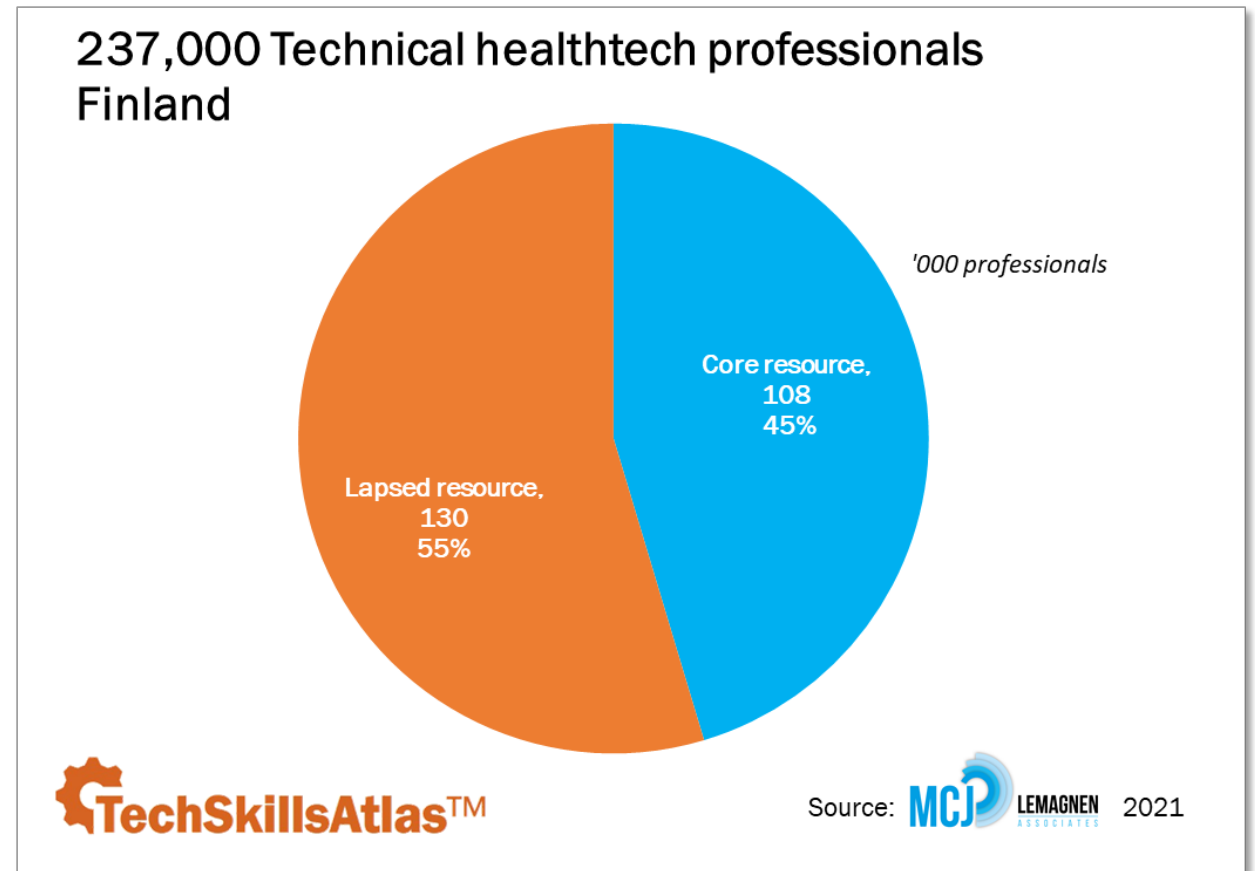
Oulu, Turku and Tampere have significant talent pools



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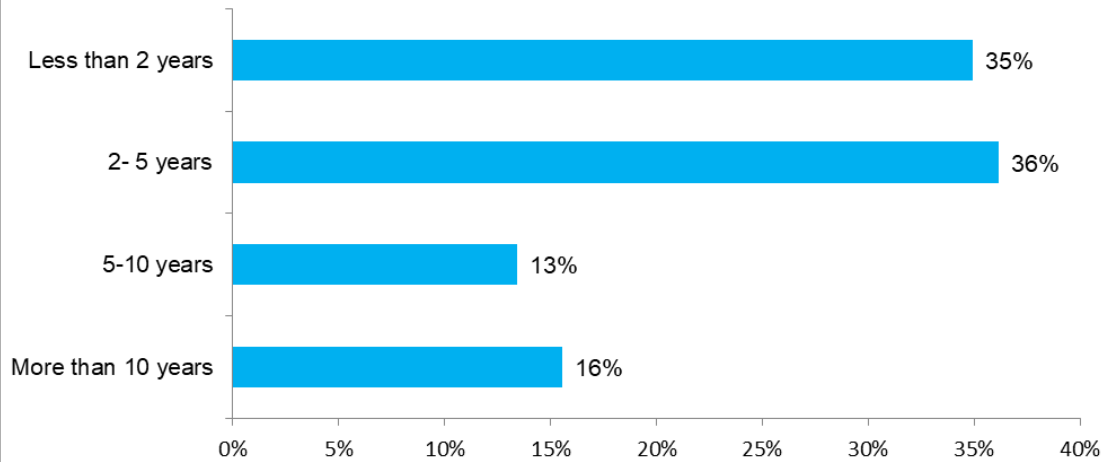
UNTAPPED POTENTIAL AMONGST LAPSED RESOURCE

- Total resource 237,000
 - Core resource of 108,000 are currently working in technical role
 - **But 130,000 are no longer working in technical role**
 - **7% of lapsed resource is not in work**



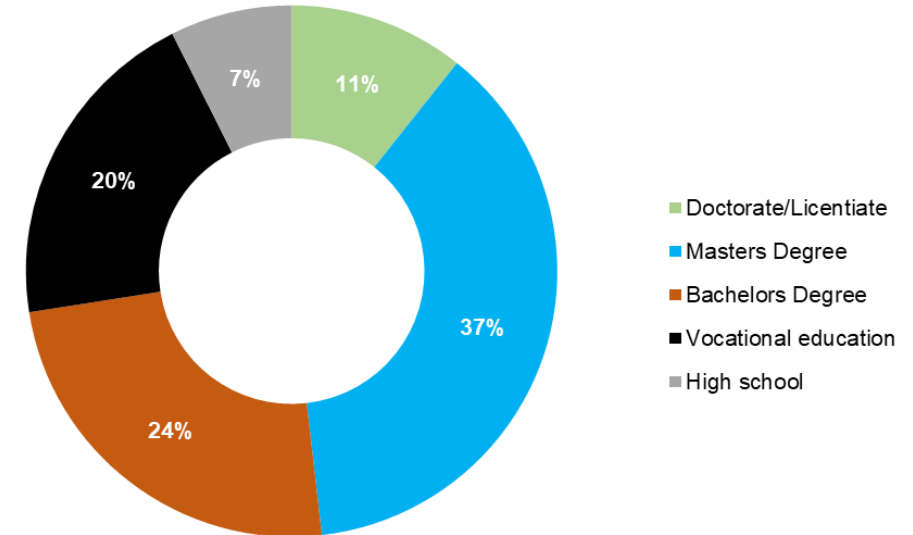
HIGHLY QUALIFIED WITH A GREAT MIX OF EXPERIENCED AND YOUNGER TALENT

Experience working in a technical healthtech role- core professionals - Finland



Source: 2021

Educational attainment- core technical healthtech professionals - Finland

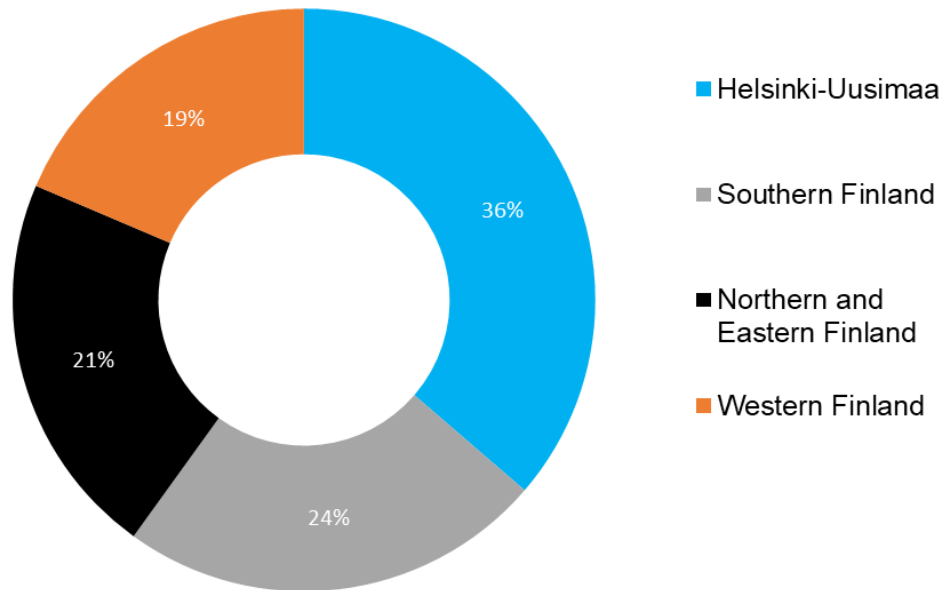


Source: 2021

- **Experience:** 35% have worked in a technical healthtech role for less than 2 years...29% for more than 5 years
- **Education:** 48% have at least a Masters degree
- **New talent pipeline:** 13,800 new health and wellbeing tertiary and vocational education graduates per year across Finland

ALL PROFESSIONALS' REGION OF RESIDENCE

All healthtech professionals by region of residence

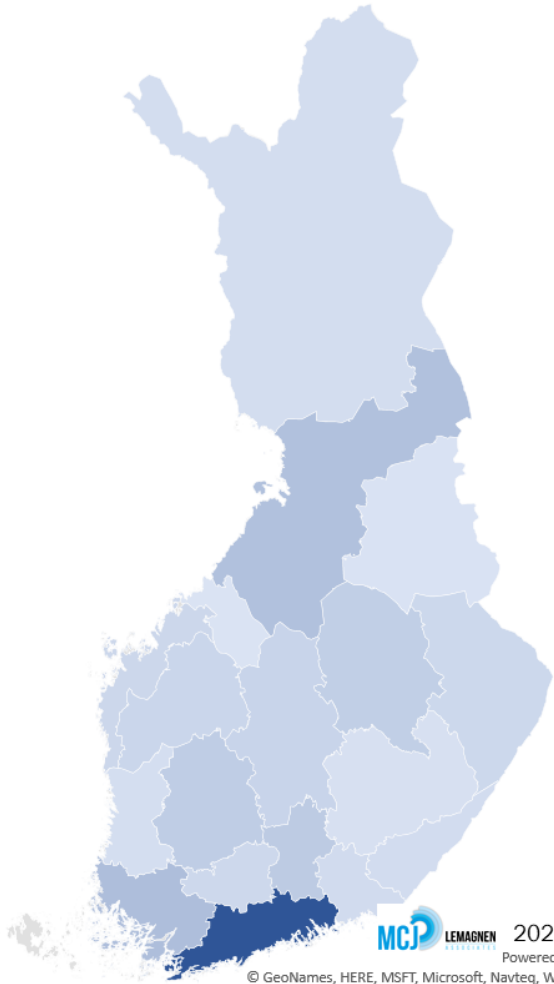


Source:  2021

- Healthtech professionals are available across Finland
- Helsinki-Uusimaa has the largest talent pool
- 24% live in Southern Finland, which has the highest concentration coefficient of healthtech professionals

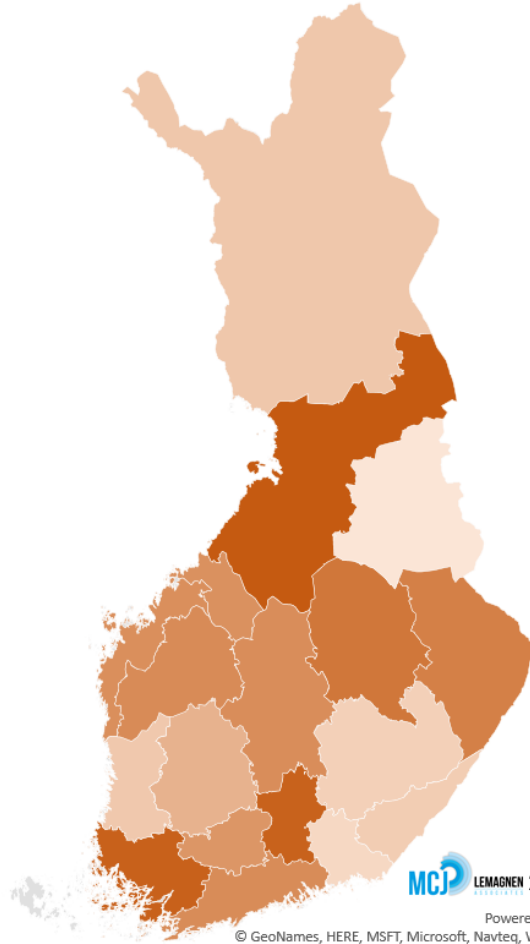
Number of healthtech professionals by county

Total Resource (thousands) 1 86



Healthtech professionals: MCJ Skills Concentration Coefficient© %

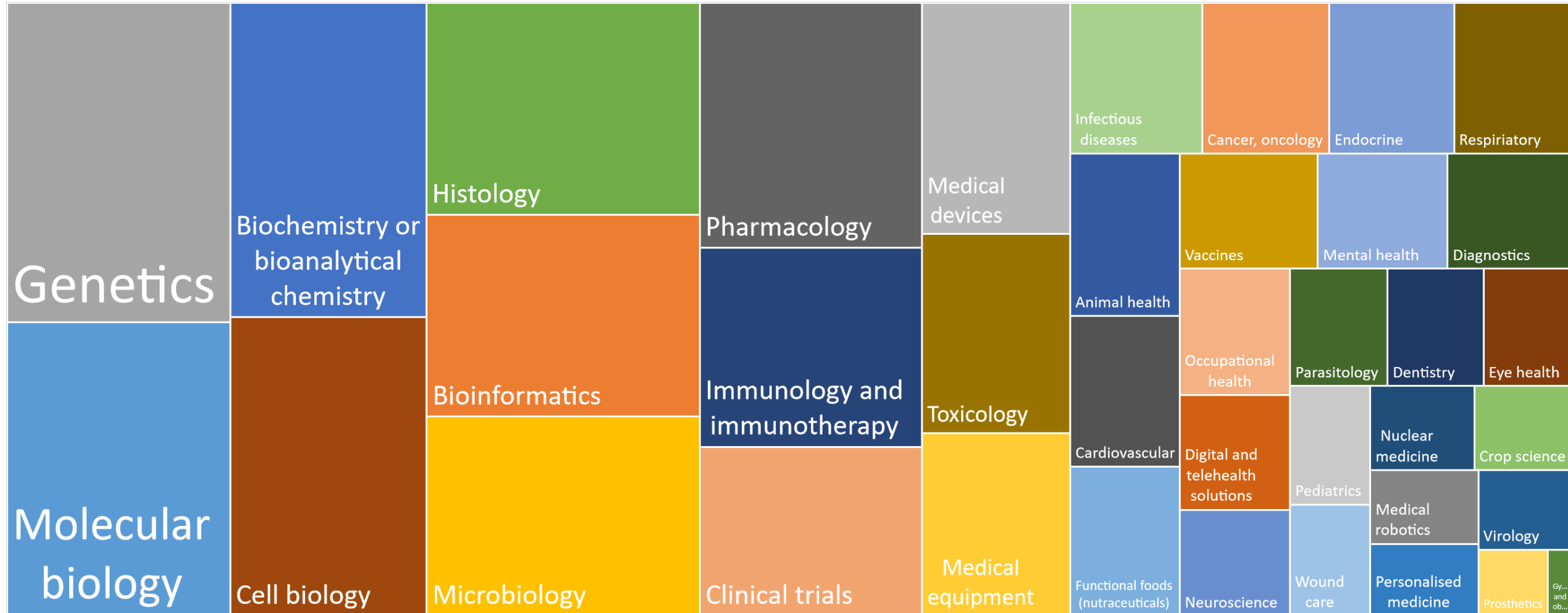
Smoothed average 18-21 4 12



COUNTY MAPS

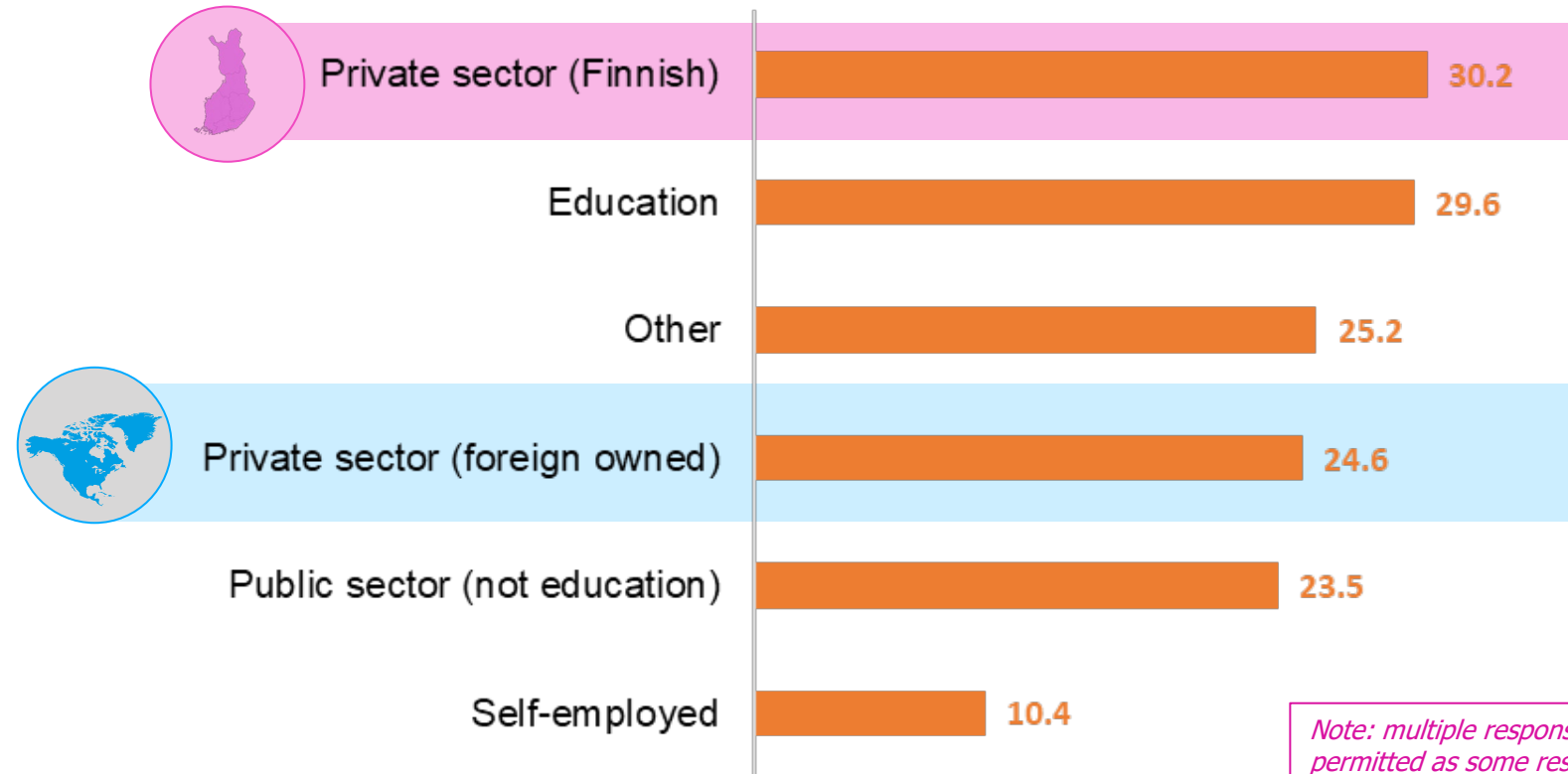
- Map on the left (blue) shows the large resource bases in Finland's largest city area
 - The largest resource pools are in Helsinki-Uusimaa and the counties around, Oulu, Turku and Tampere
- Map on the right (brown) shows there are pockets of expertise across the country

Specialist healthtech expertise - core professionals - Finland



EMPLOYMENT PROFILE OF TOTAL RESOURCE

- 25% work in private companies with headquarters outside Finland



Note: multiple responses were permitted as some respondents have more than one job.

MULTI-SKILLED COMPETENCE

% of healthtech professionals with other technical skills experience - Finland



Source:  LEMAGNEN 2021
ASSOCIATES

- Healthtech professionals have good technical knowhow of other fields
- Strong overlap with engineering

For further information, please contact

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