

Economic Renewal of Cities and Regions

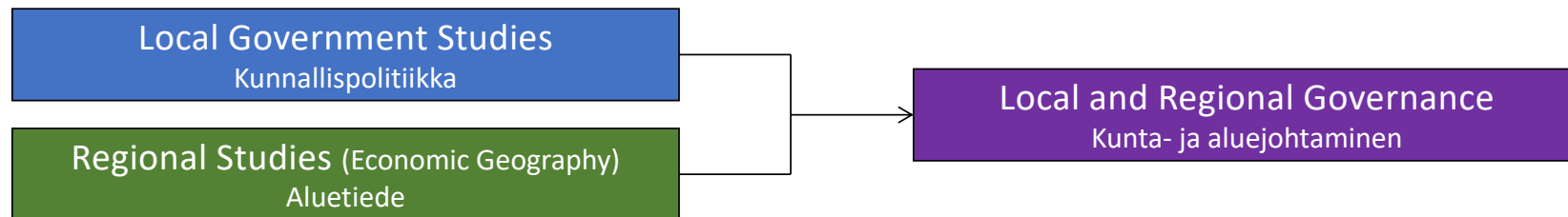
HAL.KAJO.214

Markku Sotarauta

Local and Regional Governance
Kunta- ja aluejohtaminen



Local and Regional Governance



HAL.KAJO.214

HAL.KAJO.316

Leadership in Urban and
Regional Development

HAL.KAJO.312

Institutions and Innovation in
Urban and Regional Development

MDP in Transformative Urban and
Regional Governance

The material can be found here:

- www.sotarauta.info -> teaching -> HAL.KAJO.214 Economic renewal of cities and regions 5 ECTS
- Please note! Moodle is NOT used



Monday 26.10 lectures have been moved to
Tuesday, October 27 at 10-12 (same place)

Core questions in urban and regional studies

(Storper 2013)

- Why do some regions grow while the others decline?
- What differentiates regions that are able to sustain beneficial development from those that are not?
- Why are some regions more productive and/or innovative than others?
- What are the principal regularities in urban and regional growth?
- What are the events and processes that affect development pathways?

Learning outcomes, a small step towards answers

Important knowledge-based theories and development models of cities and regions

- The key forces that shape economic development of cities and regions
- The potential and constraints of the most important economic development models in use
- How institutional varieties shape economic development of cities and regions in different locations
- The nature and thematic areas of innovation oriented local and regional development studies



What

- Seven on-campus sessions (recorded and posted on the website)
- Short online videos whenever you want
 - 1-a. Why do some cities innovate while others don't? (2026) Urban Studies and Tech. (7:21)
 - 1-b. Andrès Rodriguez-Pose (2019). The revenge of the place in a nutshell (5:58)
 - 3-a. Cluster Dynamics, part 1. 2010 (9:50)
 - 3-b. Cluster Dynamics, part 2. 2010 (9:43)
 - 3-c. Cluster Policy, part 1. 2010 (9:49)
 - 3-d. Cluster Policy, part 2. 2010 (9:29)



A report to read

Beer, A., McKenzie, F., Blažek, J., Sotarauta, M. & Ayres, S. (2020) Every place matters: towards effective place-based policy. Regional Studies Policy Impact Books; Taylor & Francis.

Work

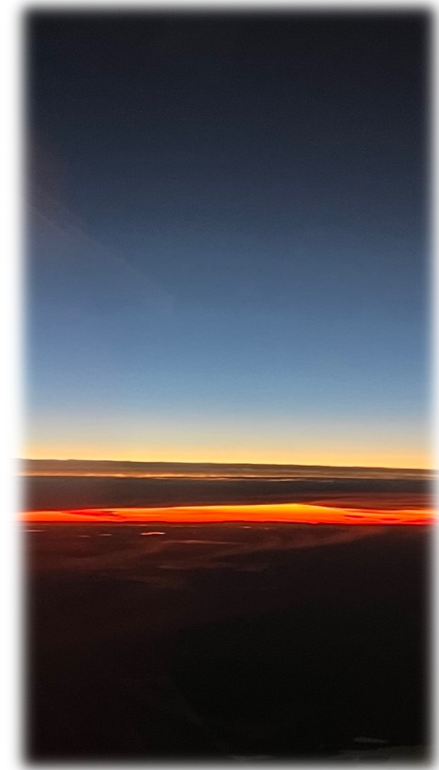
Work for the class includes following the online and on-campus lectures, independent reading and writing an essay in Tuni-Exam.

- Everybody will write the essay in English
- The Tuni-Exam will be open from December 1 to December 10.



Tuni-Exam Essay

- Remember to book yourself a slot
- The questions to discuss in the essay are:
 - Why do some regions/cities develop better than others?
 - What should we focus on to make place-based policies work well for regions? Use the Beer et al. report to mull this one over.
- The two questions on the Tuni-Exam are prompts to ponder your learning. They are **NOT** exam questions.
 - Their function is to guide thinking, learning and writing



Questions, comments?

Regional development dynamic through some cases

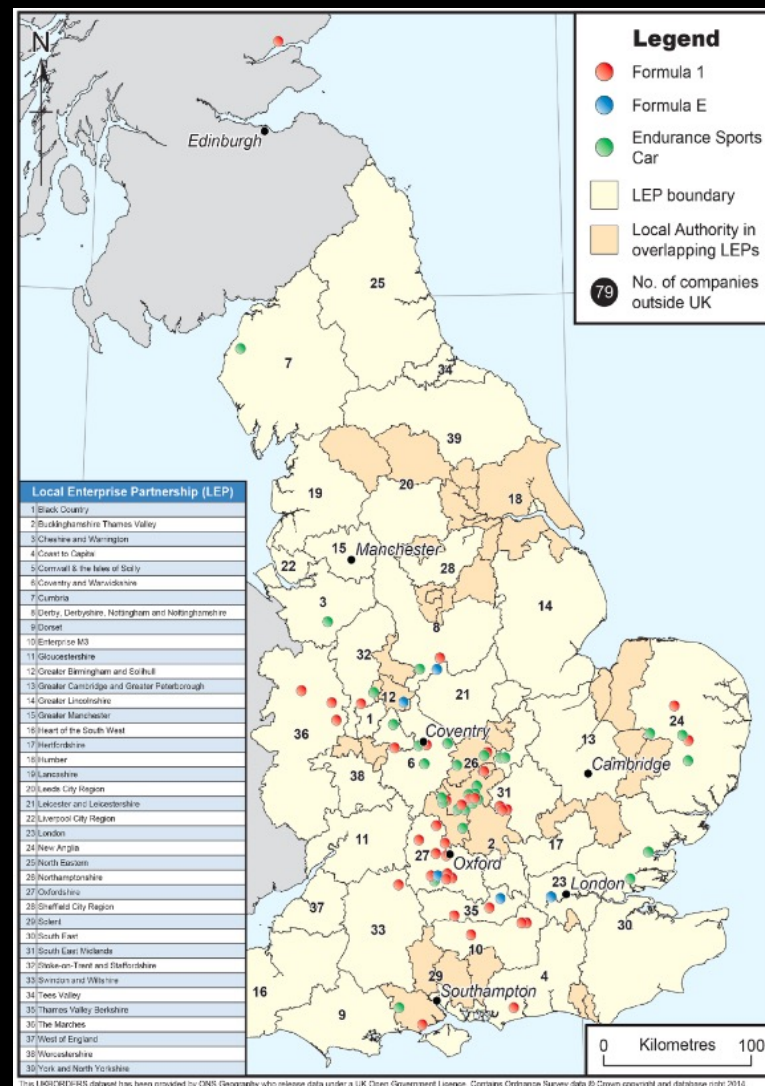
Economic development tend to concentrate – new patterns emerging



Why are most of the
Formula 1 teams located
in the same region?



(Henry & Pinch, 2000; Henry, Angus & Jenkins, 2021)



Where are the UK teams based?

Motorsport
Valley

Haas
Banbury



Renault
Enstone

Alpine



Williams
Grove



Toro Rosso
Bicester

Alpha Tauri



Racing Point
Silverstone

Aston Martin



Mercedes
Brackley & Brixworth



**Red Bull
& Honda**
Milton Keynes



McLaren
Woking

Motor Sport Valley

(Henry & Pinch, 2000; Henry, Angus & Jenkins, 2021)

- The UK is the world leader in global motorsport, most of the teams are based in the UK
 - 4300 companies
 - Over £ 9bn sales turnover worldwide
 - 41,000 staff
 - 6 universities
 - R&D at around 25–30% of turnover
- Solutions also to pharmaceuticals, marine and aerospace, for example
 - Integrated systems, telemetry, telematics, etc.

Knowledge spillovers - of primary importance:

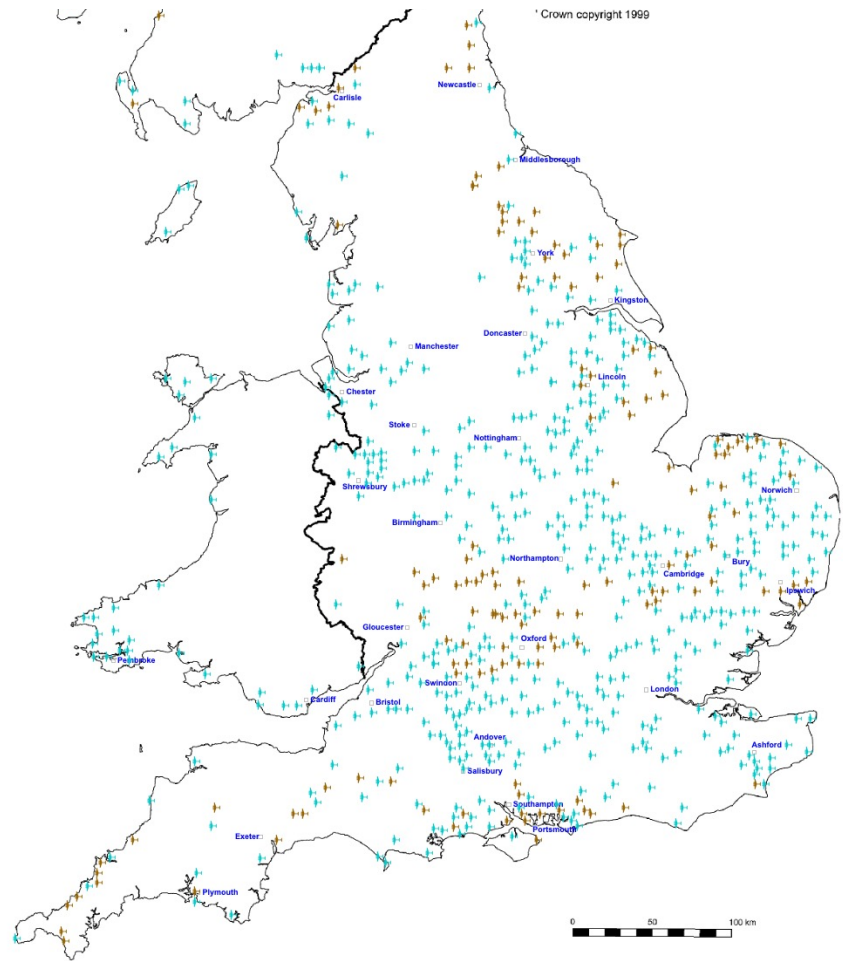
- rapid turnover of staff
- information leakage through links with suppliers
- new firm formation by insiders
- informal collaboration
- gossip and rumour
- personal contact network
- observation in the pit lane during races

Its location is a result of the Second World War

Top Motorsport Engineering Universities: The 2026 Global Rankings

<https://sarahmooreracing.com/top-motorsport-engineering-universities-2026/>

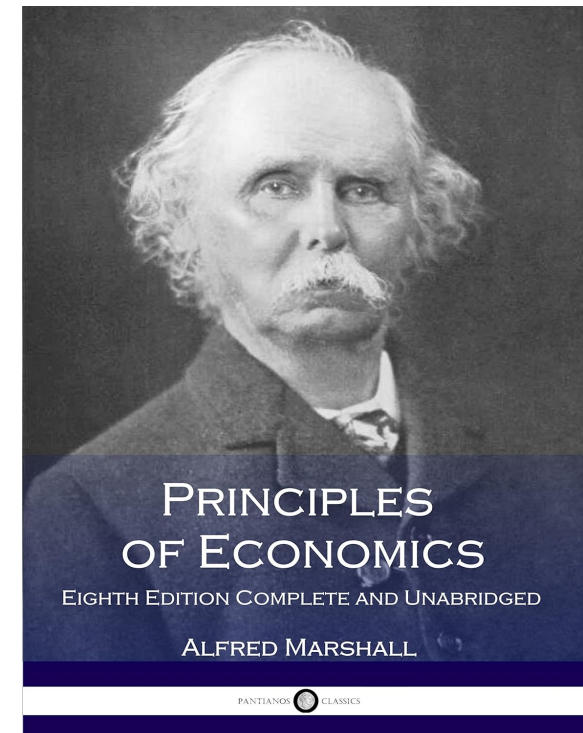
UNIVERSITY	COUNTRY	KEY STRENGTH	NOTABLE FACT
Oxford Brookes University	UK	F1 placements	A strong F1 graduate pipeline
Cranfield University	UK	World-class facilities	MSc program includes advanced simulators and dedicated motorsport labs
University of Hertfordshire	UK	Motorsport Valley	Part of the UK's F1 talent cluster with direct industry access
UNC Charlotte	USA	NASCAR pipeline	Produces significant NASCAR engineering talent
Purdue University	USA	NASCAR focus	Specialized coursework and capstone projects for NASCAR careers
Monash University	Australia	Global standout	Leading motorsport program in the Southern Hemisphere
Loughborough University	UK	Strong engineering	Excellent overall engineering reputation with motorsport specializations
University of Michigan	USA	Top automotive	EduRank Automotive 2026: globally
MIT	USA	Top general engineering	QS Mech/Aero Eng 2026: 97.6 score, globally
Tsinghua University	China	Top automotive	EduRank Automotive 2026: globally



Agglomeration economies

- are the benefits that come when firms and people locate near one another together in cities and industrial clusters
- exist when production is cheaper because of clustering
- support learning and knowledge sharing
- make possible to establish other businesses that may take advantage of clustered economies without joining any big organisation.

(Marshall in the late 19th century; Glaeser, 2010; and many others)



Why – traditional explanations

Large scale internal economies

- Firms locate their activities in one place to reduce costs
- But also, firms locate their activities in different parts of the world to reduce costs, access markets and/or tap into expertise

Localisation economies

- Many firms and other organisations may take advantage of local economies of scale when important resources (labour, information, etc) are located close to the organisation.

Urbanisation economies

- Economies of scale related to urbanisation; concentrations of assets that ‘everybody’ can exploit
 - advanced labour markets, infrastructure, logistics, services, educational services, local demand etc.
- “Pick and mix” –model
- How does AI change the regional development landscape – does it level the opportunities or concentrate them to specific places?

In sum - since the 1990s, we have believed and still do

“Regions [cities] are becoming focal points for knowledge creation and learning in the new age of global, knowledge-intensive capitalism”

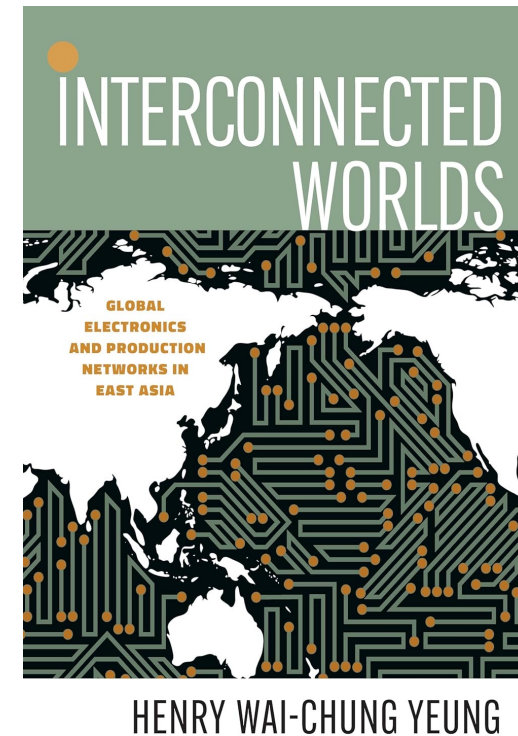
“In fact, despite continued predictions of the end of geography, regions [cities] are becoming more important nodes of economic and technological organization on a global scale.”

“Regions [cities] function as collectors and repositories of knowledge and ideas and provide the underlying environment or infrastructure which facilitates the flow of knowledge, ideas and learning.”

Today we speak more about cities, but logic is more or less the same.

Now – geopolitical shifts and challenges – one example

- Geopolitical tensions
 - US-China trade wars
 - War in Ukraine
- Technological competition and rapidly evolving markets
 - US sanctions on Chinese semiconductors; leading-edge chip making; global chip shortage in automotives some years ago; etc.
- Manufacturing dependency on China
 - Not easy to move production from place to place – an entire ecosystem needed



A Chip War?

It's hard to imagine a world without microchips. They're at the heart of the devices that we use to work, travel, stay fit and entertain ourselves – from cars to smartphones and from MRI scanners to industrial robots and data centers.

Chip features are measured in nanometers.

A nanometer is one billionth of a meter, or a millionth of a millimeter.

The smallest chip at the moment is 1 nm

A hair is 100,000 nm

Why are we so worried about China/Taiwan relationships?



Business | Shielding the shield

Taiwan will not surrender its semiconductor supremacy

How to defend an industry that everyone covets

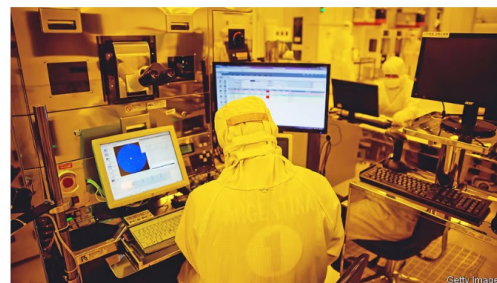
The Economist



Asia | Semiconductors and strategy

Taiwan is worried about the security of its chip industry

New laws are meant to prevent espionage and leaking

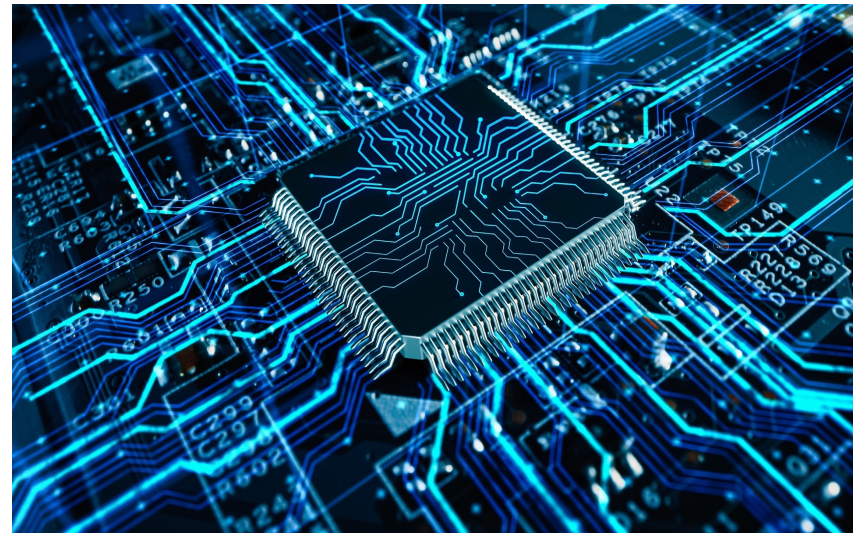


- Design often stemming from US, Japanese or European firms
- Manufacturing taking place in Taiwan and South Korea
- Manufacturing extremely complex – advanced machines and skilled labour called for
- Close collaboration between Silicon Valley and Taiwan
- Taiwan alone manufactures more than 60% of the world's semiconductors — and crucially, 90% of the most advanced ones

Taiwan Semiconductor Manufacturing Company (TSMC)
ASML in the Netherlands

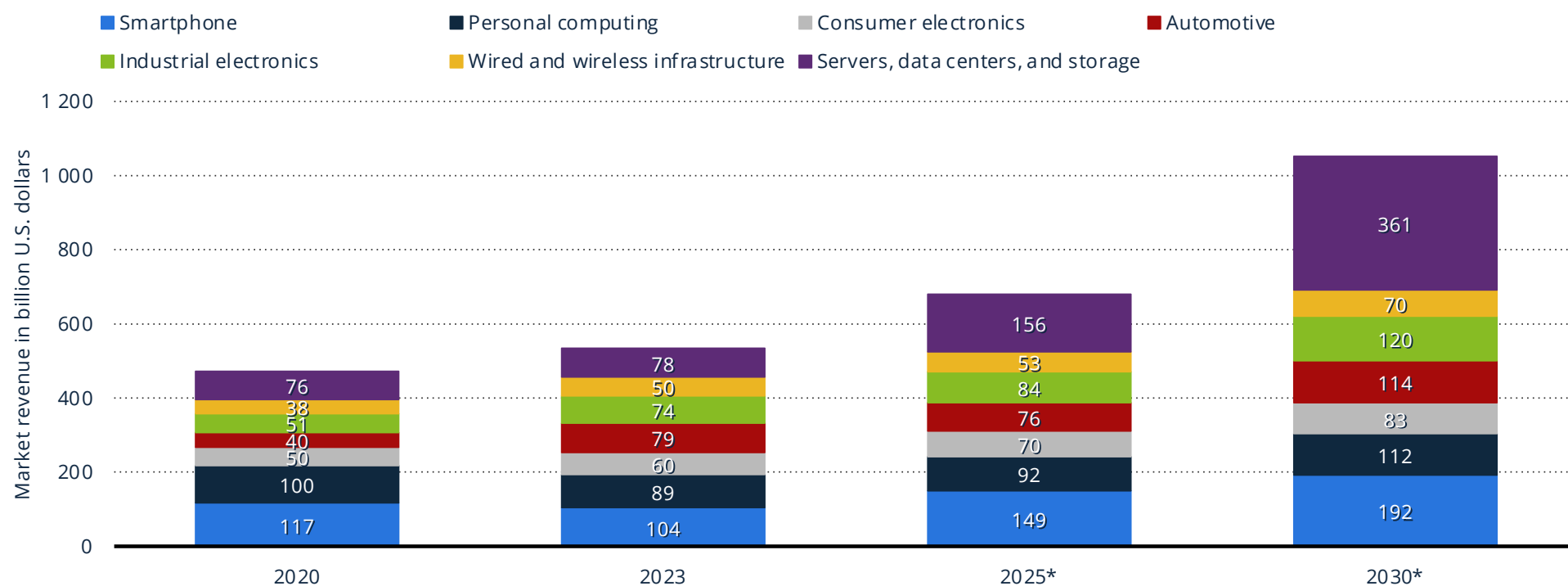
Geopolitical shifts and challenges in chip economy

- Defensive and protectionist interventions
 - CHIPS for America Act / \$52 billion
 - Integrated Circuit investment Fund of China / €150 billion
 - European Chips Act (Pillar 1) / €46 billion (€90 billion in total)
- TSMC (Taiwan), Samsung, SK Hynix (South Korea) each spending €100-150 billion over the next 3-5 years



Semiconductor market revenue worldwide from 2020 to 2030, by end market (in billion U.S. dollars)

Semiconductor market revenue worldwide 2020-2030, by end market



USA – China – European Union / dynamics in the Chip War

	Reaction to the Chip War	Core Strategy
USA	• Tighter export controls (2022–2025) • Mobilization of the supply chain among allies (Japan, the Netherlands) • CHIPS Act investments • Blacklisting of dozens of Chinese companies	• Limit China’s technological rise • Strengthen manufacturing in the U.S. • Maintain a technological lead, particularly in AI and military technology • A measured strategic recalibration (e.g., selective chip exemptions)
China	• Massive investments • Mandatory use of domestic AI chips in data centers • Subsidies and tax breaks • Domestic development of lithography and design tools, and a strategy for “technological self-sufficiency.”	• Build a national chip ecosystem • Reduce dependence on technology and production from the U.S., EU, and Japan • Focus on mid-tier chips and high-speed applications (AI, EVs, 5G).
European Union	• Pilot lines, streamlining of state aid, network of centers of excellence, stimulating investment • Crisis mechanism for supply chains • EU Chips Act	• The EU aims to reduce its dependence on U.S. and Asian technology and manufacturing by strengthening Europe’s innovation capacity, particularly in the design, manufacture, and packaging of advanced chips.

70 companies currently operate in the **Finnish** semiconductor sector, employing approximately 5,000 people with a combined turnover of almost EUR 2 billion

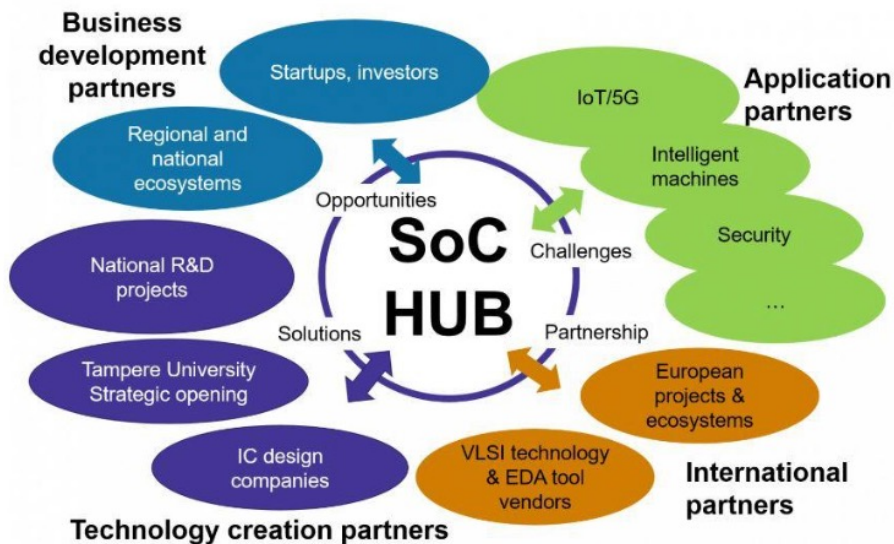
'Chips from Finland' Initiative: The World is Fighting for Microchips – Finland Can Become Top in Europe

News item | 17.3.2023 14.10

While the world's superpowers are fighting for domination over microchips, Finland has excellent chances to become the top in European microchip expertise. To this end, the Semiconductors branch group Technology Industries of Finland, other corporate partners, VTT Technical Research Centre of Finland, Tampere University and Aalto University together with the cities of Tampere and Espoo are proposing a national microchip programme in Finland.



Microchips are used for example in many consumer devices, such as cell phones.



NOKIA

Tampere University

VLSI SOLUTION

Wapice

CARGOTEC

CoreHW

FLEXIBILIS

procemex

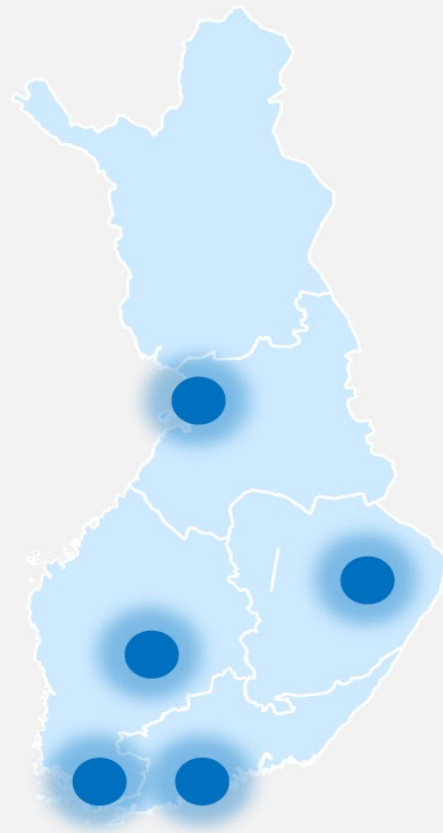
Finland – a surge of strategies, policies, initiatives

- European Chips Act (2023) European Commission
- Microelectronics Strategy (2023)
 - Nokia Ltd, Tampere University, Aalto University, VTT and cities of Tampere and Espoo
- Chips from Tampere (2023)
- Chips from the North - Semiconductor Strategy for Finland (2024)
 - Technology Industries of Finland



Exhibit 8 | Guided tour through Finland's semiconductor industry, €1600m

(Companies' turnover in region 2022, Number of companies and employees in region 2022)



Oulu region

€260M
14 companies
1400 employees

Wireless and sensor cluster



Joensuu region

€10M
5 companies
90 employees

Photonics cluster



Tampere region

€130M
17 companies
550 employees

Chip R&D and design hub



Capital region

(Helsinki, Espoo, Vantaa)
€1130M
43 companies
4400 employees

Broad research and expertise cluster



Turku region

€45M
9 companies
200 employees

Medical cluster



Example companies in Finland

NOKIA	Networks	BOSCH	Sensors
Microsoft	R&D and design	Intel	SW, RF circuits
VAISALA	Sensors and MEMS	SemiQon	Quantum processors
muRata	MEMS	GRUEN CAR	Wireless connectivity
HUAWEI	Networks	NVIDIA	SoC software
BLUEFORS	Cryogenic equipment	modulight	Lasers and optics
OKMETIC	Silicon wafers	Danfoss	Power, climate and drives
Detection Technology	X-ray detectors	dispelix	XR waveguides
beno	ALD	ASPOCOMP	PCBs
NORDIC	Wireless connectivity	ASM	ALD
OPTOFIDELITY	Testing equipment	TEXAS INSTRUMENTS	Analog, power and wireless
ADAPTED MICRO	ALD	IQM	Quantum computers
SENOP	Optronic solutions	CANATU	Nanomaterials
CoreHW	IC design	PiBond	Nanomaterials

Note: Oulu region covers North Ostrobothnia and Kainuu region. Joensuu region covers North Karelia and North Savo regions. Tampere region covers Pirkanmaa and Kanta-Häme region. Capital region covers Uusimaa region. Turku region covers Southwest Finland region. Source: Orbis¹⁵, BCG.

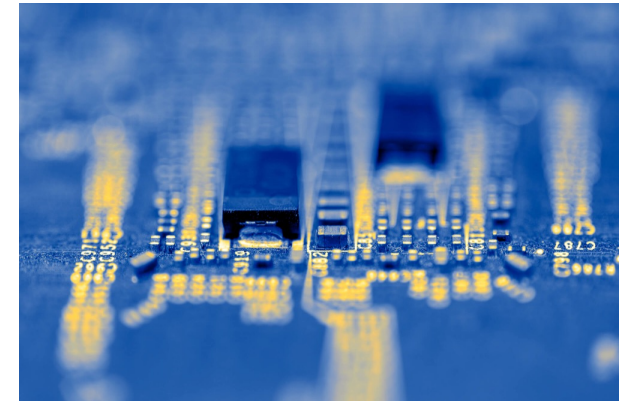
(Source: Chips from the North, 2024)

Security-conditioned path development – the Finnish building blocks

- **FiCCC – Finnish Chips Competence Centre** was established to accelerate industrial digitalisation through microelectronics. The centre operates at Tampere University's Hervanta campus (2024)
- **SiPFAB – System-in-Package Pilot Line** is a platform where companies can develop and test next-generation chips in collaboration with the university. Construction of the pilot begins in 2026 (2024)
- **SoC Hub (System-on-Chip)** is a collaborative platform for system-on-chip design jointly operated by Tampere University and industry partners (2023)

Tampere Region Selected to the
Presidency of the European
Semiconductor Regions Alliance, ESRA

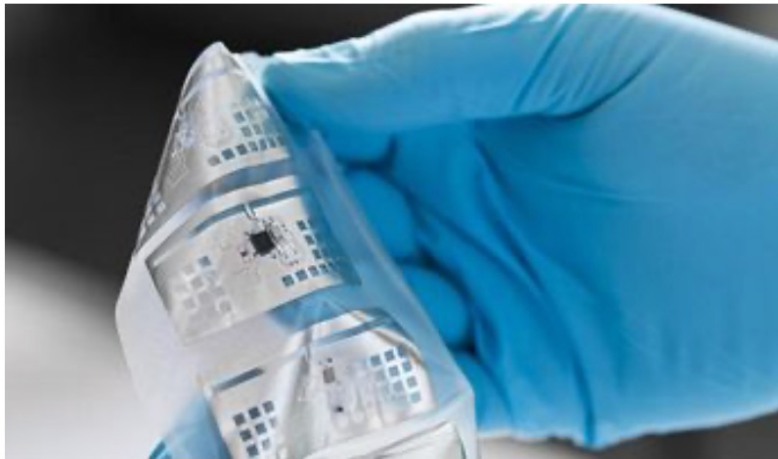
<https://business tampere.com/en/blog/2025/09/30/tampere-region-selected-to-the-presidency-of-the-european-semiconductor-regions-alliance-esra>





A pilot line for semiconductor chip packaging to be built in Tampere – University receives €40 million funding

15.4.2024



Part of the €40 million funding comes from the European Union and part from the Finnish government. In total, the EU has selected four pilot line proposals to significantly enhance Europe's self-sufficiency in microchips in the coming years.

Lue seuraavaksi



Would you rather have a match-box or a Tic Tac under your skin? A Tampere-based company aims to dominate the world of small smart implants

News | 17.5.2024



Winse Power from Tampere, Finland admitted into the European Space Agency Business Incubator program

News | 11.12.2023

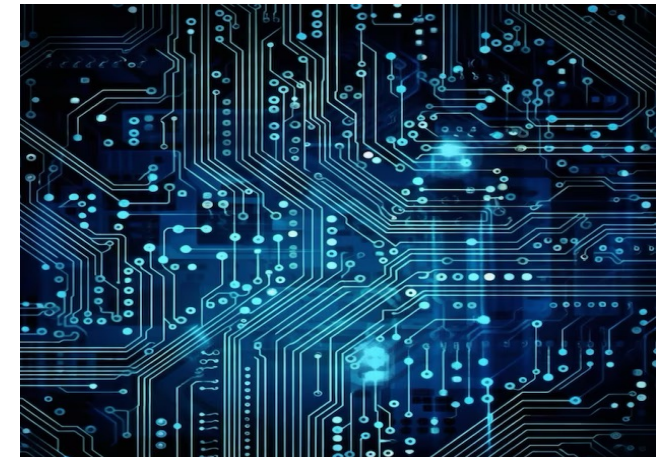


Tampere region strengthens its investment in the chip industry

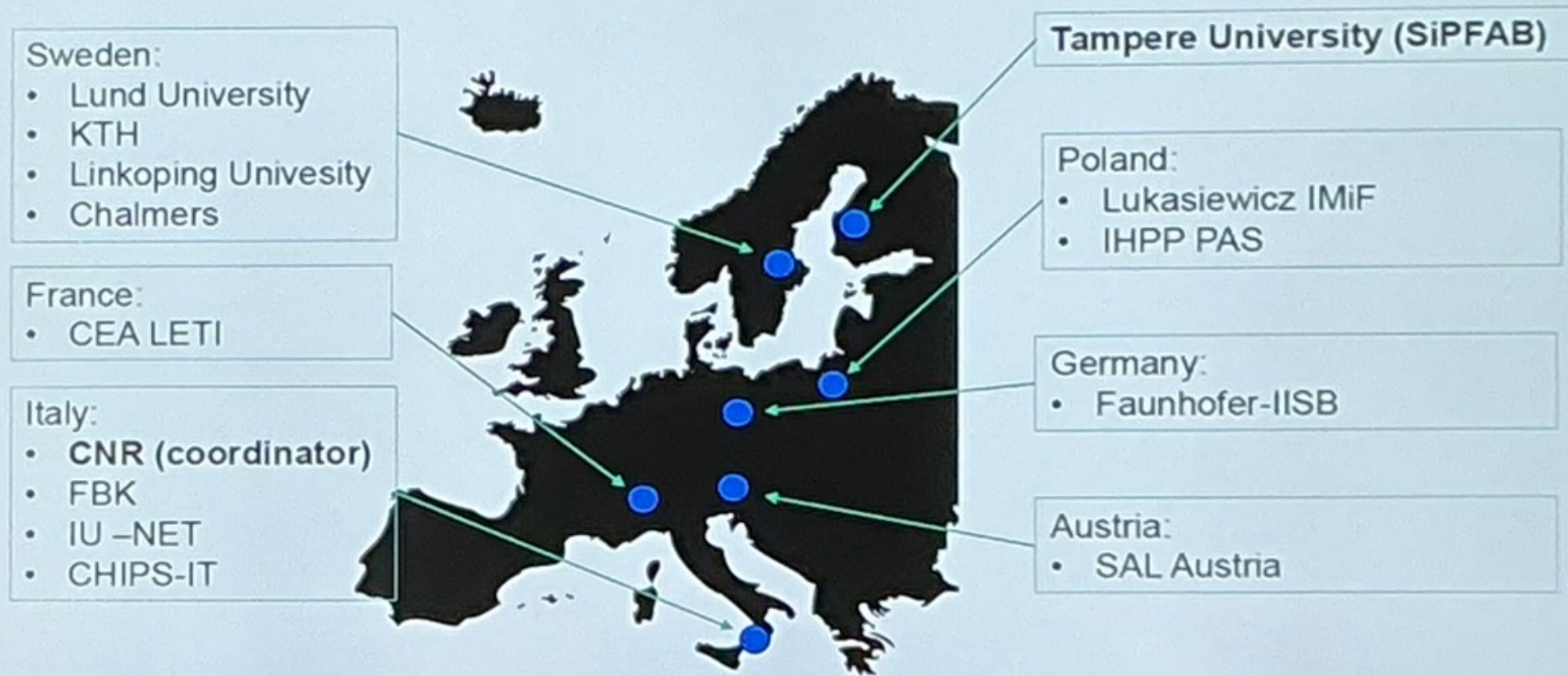
News | 22.6.2023

Tampere University is a partner in the WBG Pilot Line. It focuses on developing wide bandgap (WBG) semiconductors and testing and integrating WBG chips

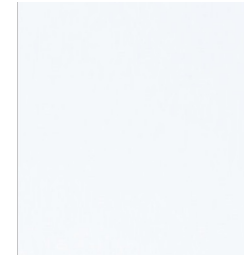
WBG is next-generation semiconductor technology with a wide range of applications (in motor control systems, battery management systems, fast charging systems, photovoltaic inverters, power supply systems and 5G base stations)



WBG Pilot Line Consortium



What is this all about - Knowledge economy



- Knowledge ages rapidly and new knowledge is constantly replacing the old one
- Scientific (including social scientific) knowledge is highly valued
 - The scale and economic penetration of scientific knowledge exceeds distinctly the previous economic development phases
- Knowledge economies are especially characterized by exploitation of new knowledge to create more new knowledge

