



DRIVING EUROPE'S DIGITAL TRANSFORMATION

Europe recognizes the need to step up

- European Council
24/10/2013 – 25/10/2013
Brussels
- The agenda
 - Digital Economy
 - Single Digital Market
 - Skills
 - Innovation
- Europe is highly competitive when it regards Research
- When transforming Research to Business, Europe is far behind the USA.
- Need for an instrument that concentrates on Innovation Acceleration and that does not finance research.



The 3 pillars to “Sustain our Vision”

- Education, Research and Business – a tight collaboration is necessary to accelerate ICT innovation in Europe
- From Idea to Product, from Laboratory to Market and from Student to Entrepreneur.
- The mission of EIT Digital is to drive the European leadership in ICT innovation, for a economical growth and a better quality of life.
- Boosting revenue and visibility at European level by design: A European Accelerator



Knowledge and Innovation Communities

The EIT's KICs are:

- Thematic innovation communities that develop innovative products and services, foster new business , encourage growth and nurture young entrepreneurial talent
- Characterised by a high degree of integration, a long-term perspective, efficient governance, the co-location model and the entrepreneurial culture
- Unique partnerships that increase Europe's capacity for innovation by bringing together leading companies, universities and research labs
- Able to react to new challenges and changing environments in an effective and flexible way
- Driven by a pursuit of excellence





The KIC model

A business logic

- **High degree of integration:** each KIC is an independent legal entity, gathering world-class partners from across the knowledge triangle based on a contractual relationship/partnership with the EIT.
- **Long-term strategic approach:** each KIC is set up for a minimum of 7 years to eventually become sustainable.
- **Autonomy and flexibility:** to determine organisational structure and activities governed by a Board of KIC partner organisations.
- **Effective governance:** run by a CEO and a lean management team at central and co-location centre level.





The KIC model

an investment logic

- **Smart funding & high degree of commitment of partners:** EIT funding to KICs is max. 25% of their total budget over time with 75% to be attracted from other sources, both public and private.
- **Culture:** KICs are shaped by strong entrepreneurial mindsets and cultures.
- **The co-location model:** each KIC consists of 5-7 world class innovation hotspots building and leveraging on existing European capacities.
- **Results & high impact oriented activities:** KICs implement a Business Plan with measurable deliverables, results and impact.



EIT's first 3 KICs – designated in December 2009

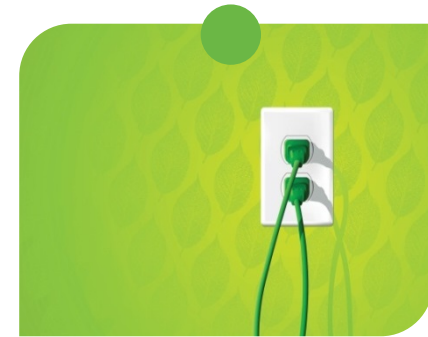
Climate-KIC



EIT Digital



KIC InnoEnergy



EIT's 2 new KICs – designated in December 2014

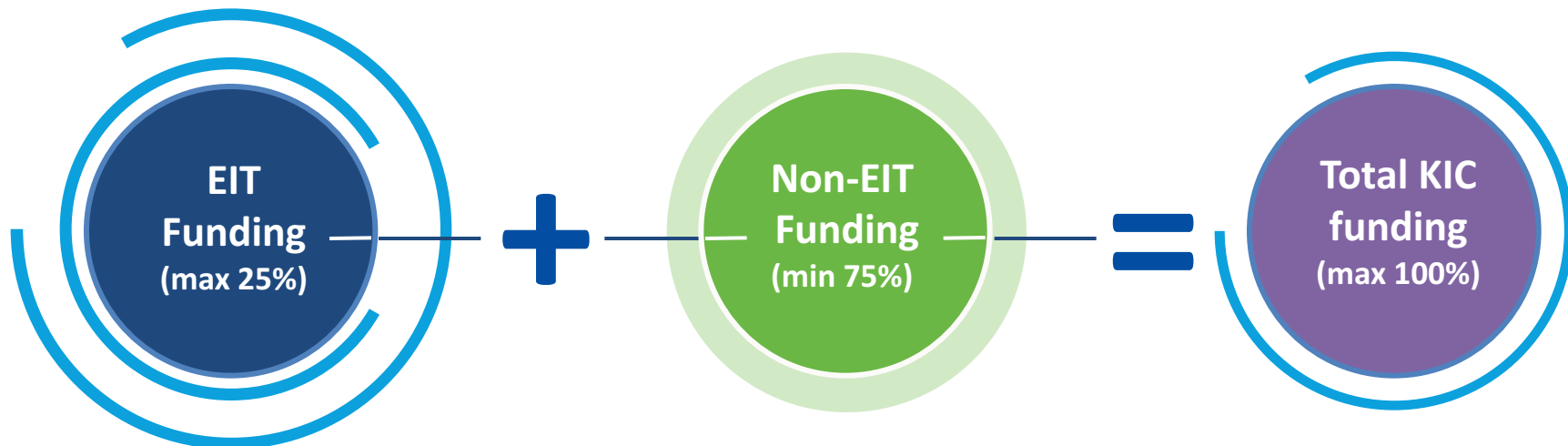
EIT Raw Materials



EIT Health



Leveraging and pooling resources



Combining EIT and non-EIT funding to:

- Ensure long-term involvement of KIC partners
- Incentivise financial commitment from KIC partners
- Provide a catalyst for investment in innovation

Driving Europe's Digital Transformation

Value Creation

McKinsey&Company

MCKINSEY GLOBAL INSTITUTE

**DIGITAL EUROPE:
PUSHING THE FRONTIER,
CAPTURING THE BENEFITS**

JUNE 2016

- Europe has key digital strengths that it can exploit for economic gains. The Digital Single Market could accelerate GDP growth, adding €375 billion to €415 billion each year, and providing a common platform to allow domestic firms to achieve scale. Even this is dwarfed by the GDP impact if laggard firms and sectors became more digitised. For instance, Europe could add €2.5 trillion to GDP in 2025 if laggard sectors were to double their digital intensity; this would boost GDP growth by 1 percent per year over the next decade.

Driving Europe's Digital Transformation

Pillars of our Strategy

Innovation &
Entrepreneurship

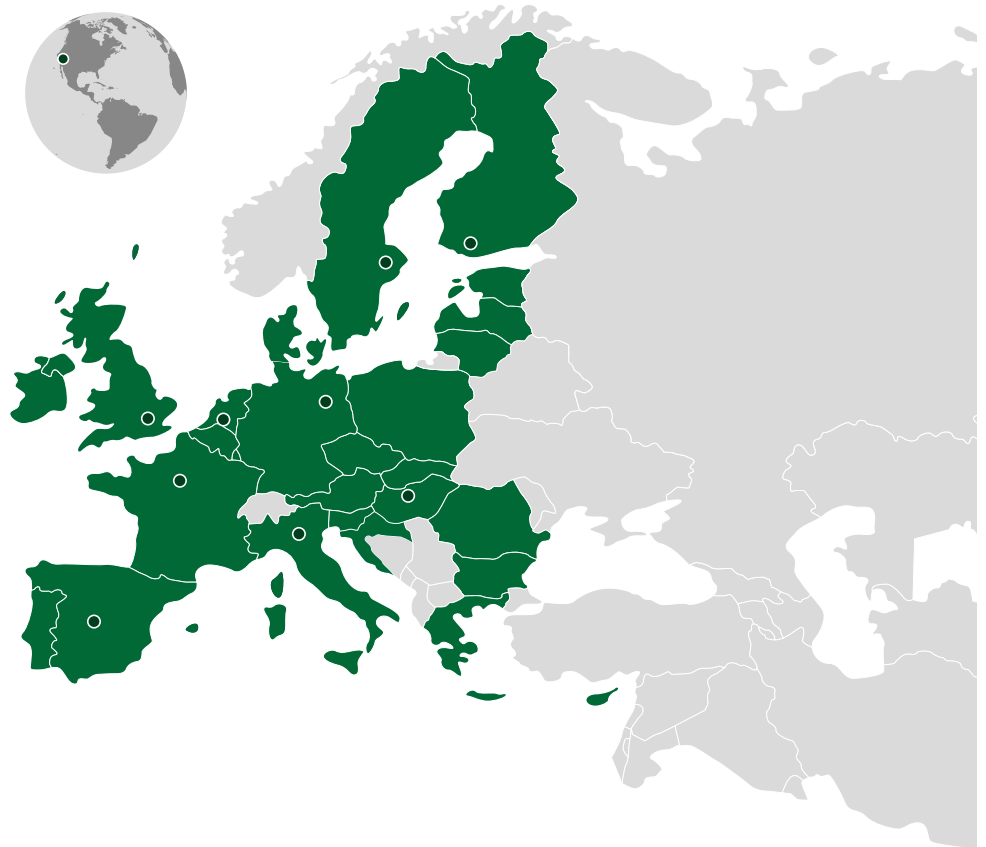
Entrepreneurial
Education

Pan-European Ecosystem

Pan-European Ecosystem

Digital Innovation & Entrepreneurial Education

- Strengthen the existing geographic footprint (9 Nodes and Silicon Valley Hub)
- Serve whole of Europe via ARISE
- Double industry footprint with focus on SMEs
- Investigate options for additional global impact



Partners

135
Partners

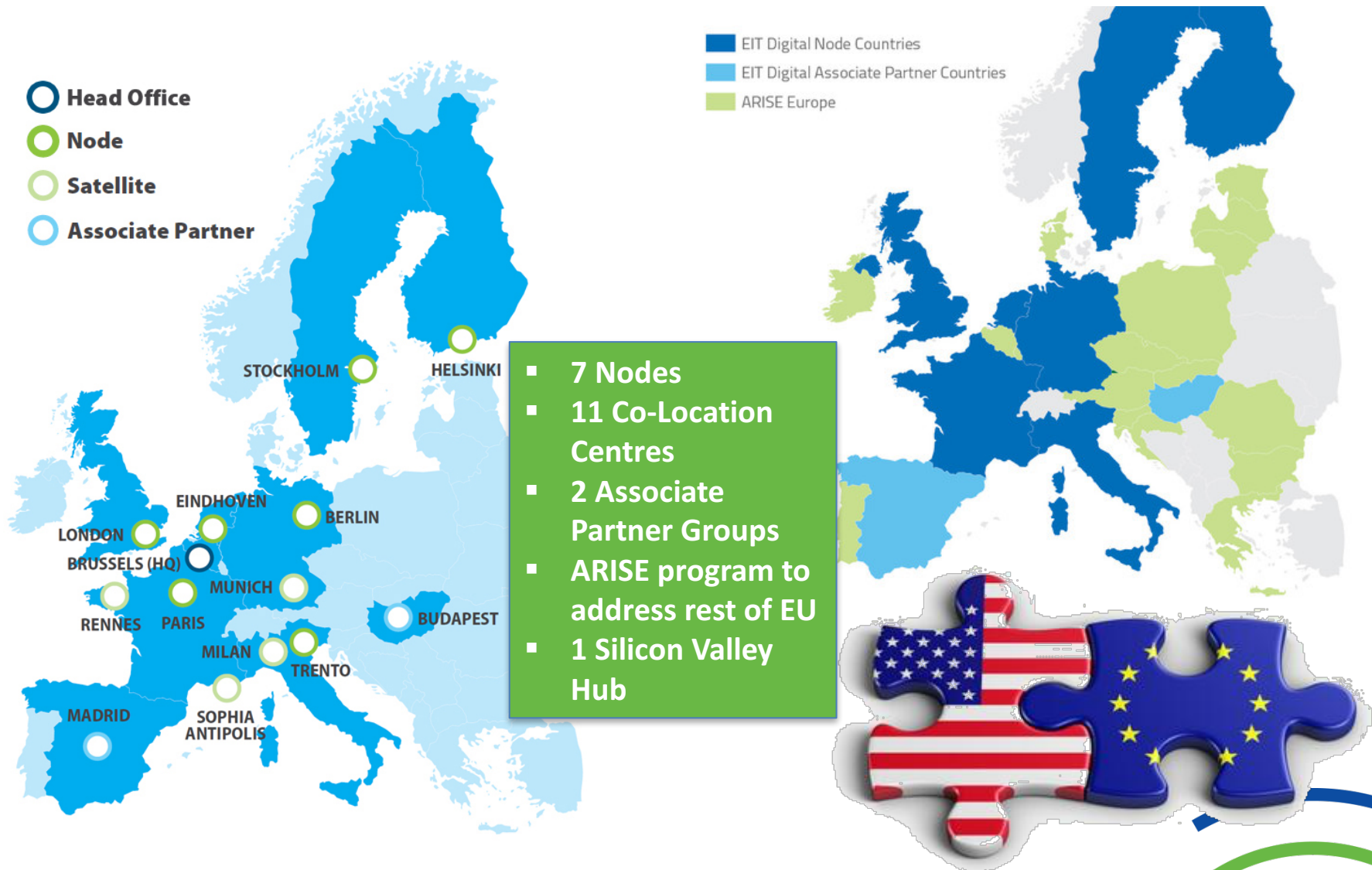
+17 in 2015

Today's partnership...



... made of more than 140 partners (members and affiliates), including SME's, large corporation, research centres, universities and start-ups.

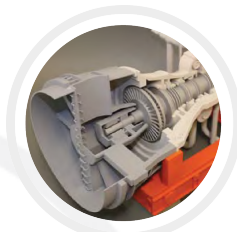
The EIT Digital Ecosystem and its Outreach



Innovation & Entrepreneurship

Grow & Go (to Market)

- Create over 200 commercially available products and services
- Coach over 300 scale-ups
- Raise 150 million euros VC



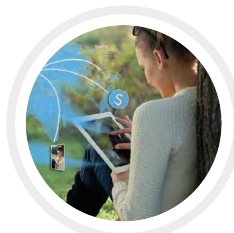
Digital Industry



Digital Wellbeing



Digital Cities



Digital Infrastructure

Research-based Innovation through Action Lines

Evolution of the actions lines

Strategic Innovation Agenda 2017-2020

Action Line	Priority Area
Digital Industry	Production
	Retail
Digital Cities	Mobile City
	Informative City
	Safe City
Digital Wellbeing	Prevention
	Social
Digital Finance	Exploration Area: Fintech
Digital Infrastructure	Data
	Networks
	Cyber-Security

EIT Digital – Understanding the landscape



Ensure the European lead in solutions and standards based on cost-effective as well as energy-efficient networking technology, supporting the traffic demands resulting from an ever increasing and variable set of applications. It addresses IoT from an architecture point of view.

Source: EIT Digital Strategic Innovation Agenda 2014-2016

Bringing Marketable Technologies

ecosystem (subset)



incubating/starting



Advanced Connectivity Platform for Vertical Segments
High Impact Initiative

Geared up for full HII in 2016

New product: Free-space optics for X-HAUL - High bandwidth, low energy

growing



Admitted to highly competitive Cisco Entrepreneur in Residence programme



Accredited supplier to Ericsson

EIT Digital – Understanding the landscape



In the area of Cloud services and Big Data, drive European competitiveness via the deployment of trusted Cloud technologies and Big Data Analytics Cloud infrastructures. ... Establishment of a European value-driven ecosystem and a user community for Big Data in the Cloud.

Source: EIT Digital Strategic Innovation Agenda 2014-2016

Bringing Marketable Technologies ecosystem (subset) incubating/starting growing

ecosystem (subset)

incubating/starting

Trusted Cloud High Impact Initiative

SME Call to expand ecosystem

3D HERO A top 20 UK tech innovator
CanaryWharf Challenge finalist

growing

severalnines
Control Your Database Infrastructure
Revenue growth 50%

NORDCLOUD
Expanding out of Finland

Flink
elevated to
Apache top level project

EIT Digital – Understanding the landscape



**Privacy, Security & Trust –
A Protected Blended Life**

Support users and businesses in protecting their digital assets and transactions, promoting robust and safe products and services that realise data privacy and security.
Mobile Cyber-Security, addressing malicious Software.

Source: EIT Digital Strategic Innovation Agenda 2014-2016

Bringing Marketable Technologies

ecosystem (subset)



incubating/starting

HC@Work
Prove viability of homomorphic encryption in practical applications



Created from an Activity Security in Crowdsourcing

growing



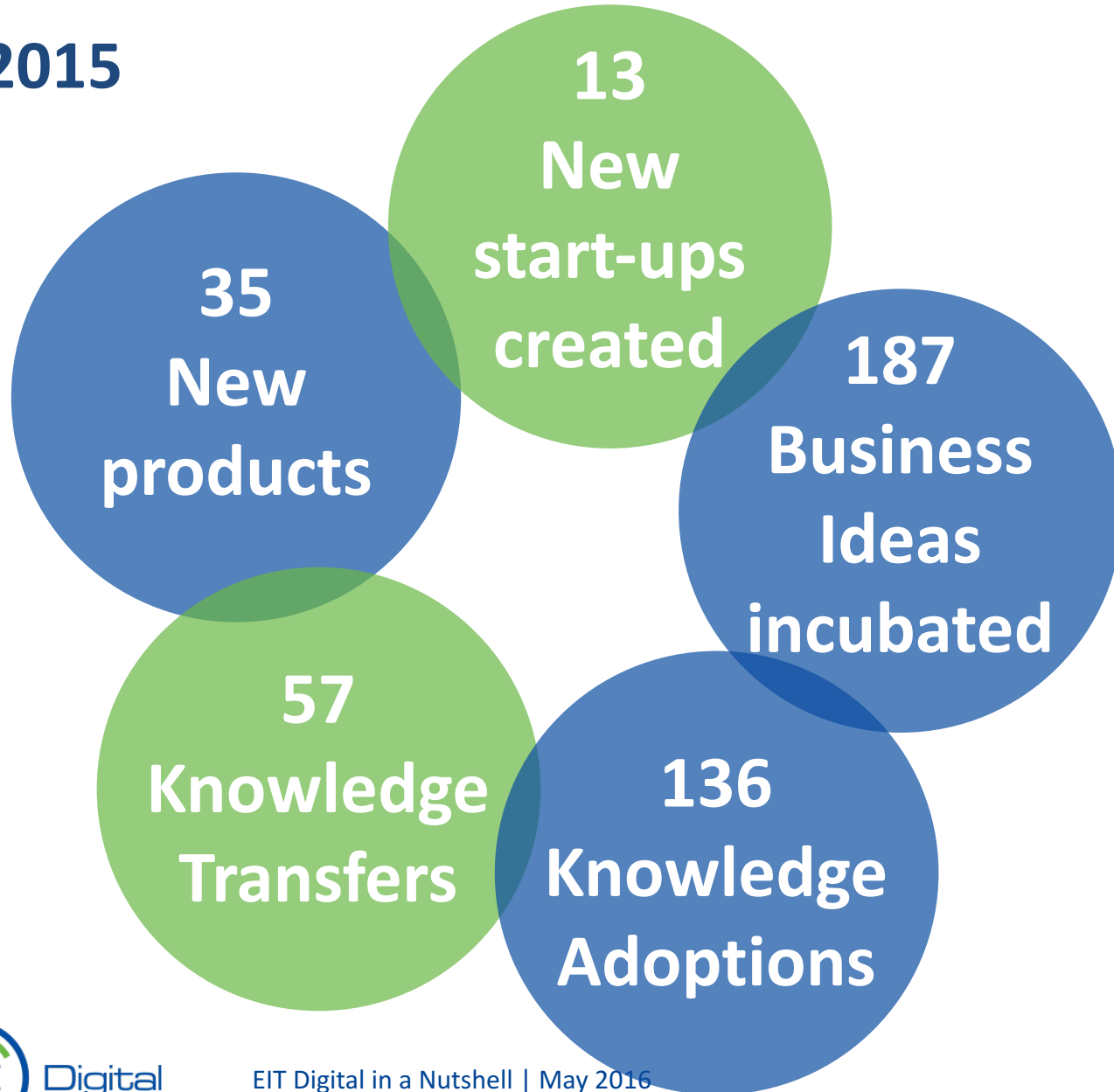
Secure calls for EIT Digital



Expansion to US, helped by Silicon Valley Hub

Research-based Innovation through Action Lines

In 2015



Business and Entrepreneurship

The Accelerator

From 2012 to 2015
211 start-ups supported.
2,200 people employed
151M€ revenues

ERB
Integration
19 start-ups
in innovation
activities

149
startups
coached
in 2015

Average
revenue
+94%

39M€
raised for
30
startups

+82
start-ups
admitted
in 2015
232 in total

Moving the Needle



G.Fast

- Ultrafast broadband on copper wires/ 20X faster download than UK avg.
- Sept. 2016: BT announces deal with Huawei and Nokia
- 10 mio homes by 2020



Fit2Perform

- Tachograph of tomorrow
- Sept 2016: Astrata is first customer
- 2017: new startup brings solution to market

Full Disruption



Distribution

- March 2016: 6 mio euros raised
- July 2016: Deal signed with Amadeus
- Intros to customers in Bulgaria, Croatia, France, Italy and UK



SecurityMatters

- Sept 2016: Over 5 mio euro raised
- 4 VC including Robert Bosch Venture capital

Full Disruption



EIT Digital @EIT_Digital · 23h



Congratulations to @EITDigitalAccel Alumni #startup @navyatechnology raising its capital by €30M bit.ly/2dNiAJv



11



13



EIT Digital – Educating the right talents



Tomorrow's digital innovators & entrepreneurs

- 74 graduated 2014
- 150 graduating 2015, 30% women
- 750 admitted students to date



Tomorrow's leaders in digital technologies

- 6 PhDs graduating 2015
- 135 admitted students to date



Lifelong at the frontier of digital innovation

- Pilot phase
- 235 learners
- All courses in blended format

BLENDED EDUCATION

- 20 Universities
- EIT Labelled Programs

Partners
Universities

- 7 Doctoral Training Centres (DTC)
- I&E provided in all DTCs

Co-Location
Centres

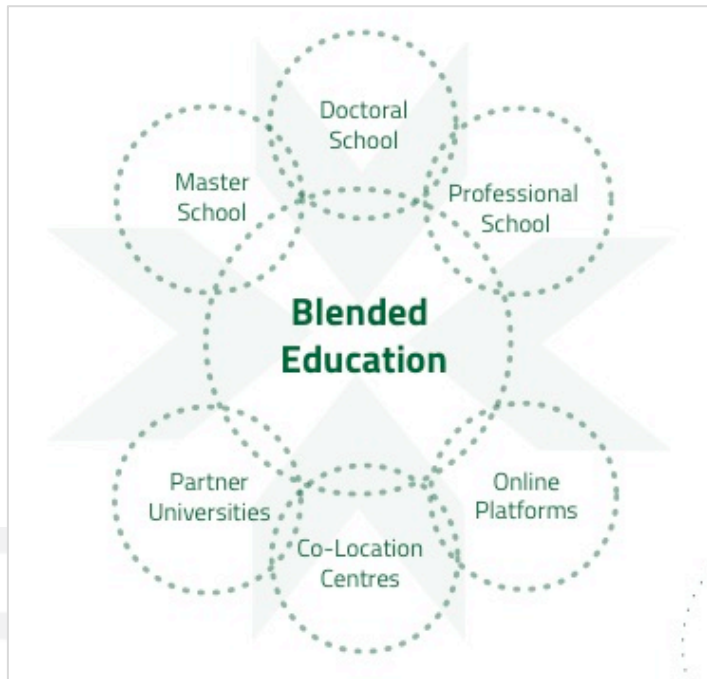
- Coursera MOOC collaboration
- I&E blended module by Sakai

On-Line
Platforms



Entrepreneurial Education

Digitally Skilled Workforce



KPIs	2017	2018	2019
Master School (new students admitted)	475	600	700
Doctoral School (total students enrolled in programme)	180	210	240
Professional School (# courses offered)	40	80	120
Professional School (# learners)	1000	2000	5000
MOOCs (# learners)	20,000	50,000	100,000

Our new generation of entrepreneurs

Karens Grigorjancs

- Sept 2016: Raised 750,000 euros through crowdfunding



Eline Leijten en haar Plugify-team
Foto: Anko Stoffels

Succesvolle crowdfundingcampagne voor Plugify

13 SEP 2016

Nils Rodday

- World-class drone expert



A Zoom on France

Node Profile – Partnership in 2016 (26 partners)

Academics (7)



RTOs (3)



Clusters (4)



Corporates (5)

THALES

- THALES Communication and Security SAS
- Thales France

NOKIA

amadeus

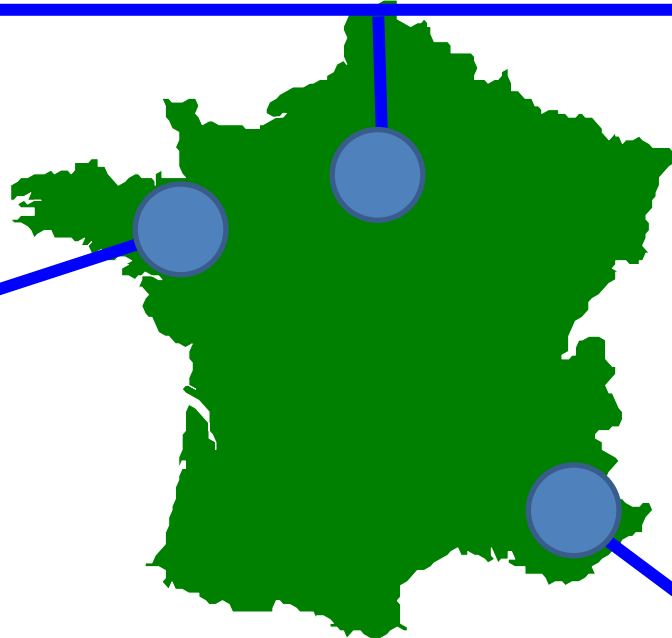


Startup/SMEs (7)



Node Profile – Partnership in 2016 (26 partners)

1 main site in Paris + 2 sites in Province (Rennes and Sophia Antipolis)





**DRIVING EUROPE'S
DIGITAL TRANSFORMATION**

Strategic Innovation Agenda 2017-19

www.eitdigital.eu
@EIT_Digital

<http://www.eitdigital.eu/news-events/publications/>

Digital Infrastructure

- Henrik Abramowicz,
Josep Colino Lopez



Trends & Opportunities

Business Trends

Digital Transformation of business and society at large

- ICT integrated in operational activities
- IoT becoming widespread and an enabler for business transformation
- Cloud/Big Data/AI basis for new business
- Cybersecurity a must in all systems
- Energy Efficiency & green business both political and economical reasons

Technology Trends

- Convergence of Computing and Networking incl IoT
- Built in Cybersecurity and Management
- Mobile/wireless predominant Access to Internet
- Autonomics as a means for self-sustenance and performance and operational efficiency for infrastructure and vertical segments
- Data traffic still increases exponentially



represents 75% of traffic

Opportunity for Europe

- Build on and Maintain European lead in networking (5G)
- Focus on distributed/hybrid cloud solutions
- Emphasis on Real time distributed processing and edge computing, building on European strength
- Distributed Real-time data management and stream analytics
- Network and execution platform robustness and cyber security
- Support new applications segments particularly for digital transformation where robustness, low latency is important

Motivations for the new Action Line

General Trends

- Digital Transformation
- Mobile Access to Internet
 - Video represents 75% of traffic
- IoT
- Autonomics
- Big Data/AI
- Privacy
- Cybersecurity



Strategic Innovation Agenda 2017-2020

Action Line	Priority Area
Digital Industry	Production
	Retail
Digital Cities	Mobile City
	Informative City
	Safe City
Digital Wellbeing	Prevention
	Social
Digital Finance	Exploration Area: Fintech
Digital Infrastructure	Data
	Networks
	Cyber-Security

Motivation for Digital Infrastructure

- Convergence of Computing and Networking incl IoT
- Built in Security and Management
- Privacy
- Expand to support of new applications segments
- Better integrations between priorities

Purpose

Overall EIT Digital Purpose

- Integrated solutions that are cost-effective as well as energy-efficient with networking and processing technology
- Support of Internet of Things non-latency dependent (best effort type of apps) to Mission critical applications (both real time and low latency)
- New segments and society at large that are dependent on robust and safe, secure and privacy-aware networking and processing

EIT Digital Contribution & Impact

- Build on partners' strength
 - in networking – major operators and vendors
 - Real time data processing and analytics
- European concerns on Cybersecurity
 - Privacy –GDPR
 - Protection of networks, computing platforms
- Support to vertical industries in
 - Networking
 - Cloud computing
 - Cybersecurity

Maintain leadership in networking - 5G

New business based on real-time data processing and analytics, AI

New business based on interaction GDPR & Cybersec policies and requirements

Development of IoT,(latency and non-latency dependent) integration of networking, computing and security

Focus of Action Line

- Elastic edge computing for real-time processing
- Distributed real-time data management and analytics
- Robustness
 - Uptime
 - Safeguarding the network and platform, trusted network and execution platform
 - breach detection and response, vulnerability detection/management and threat intelligence, handling DOS & DDOS, access control
- 5G & IoT
 - massive number of things
 - Ultra reliable communication for mission critical applications
- Integrated cyber-security
- Privacy awareness and Dig Id mgmt
- Energy efficiency

Relation to other Action Lines

Digital
Industries

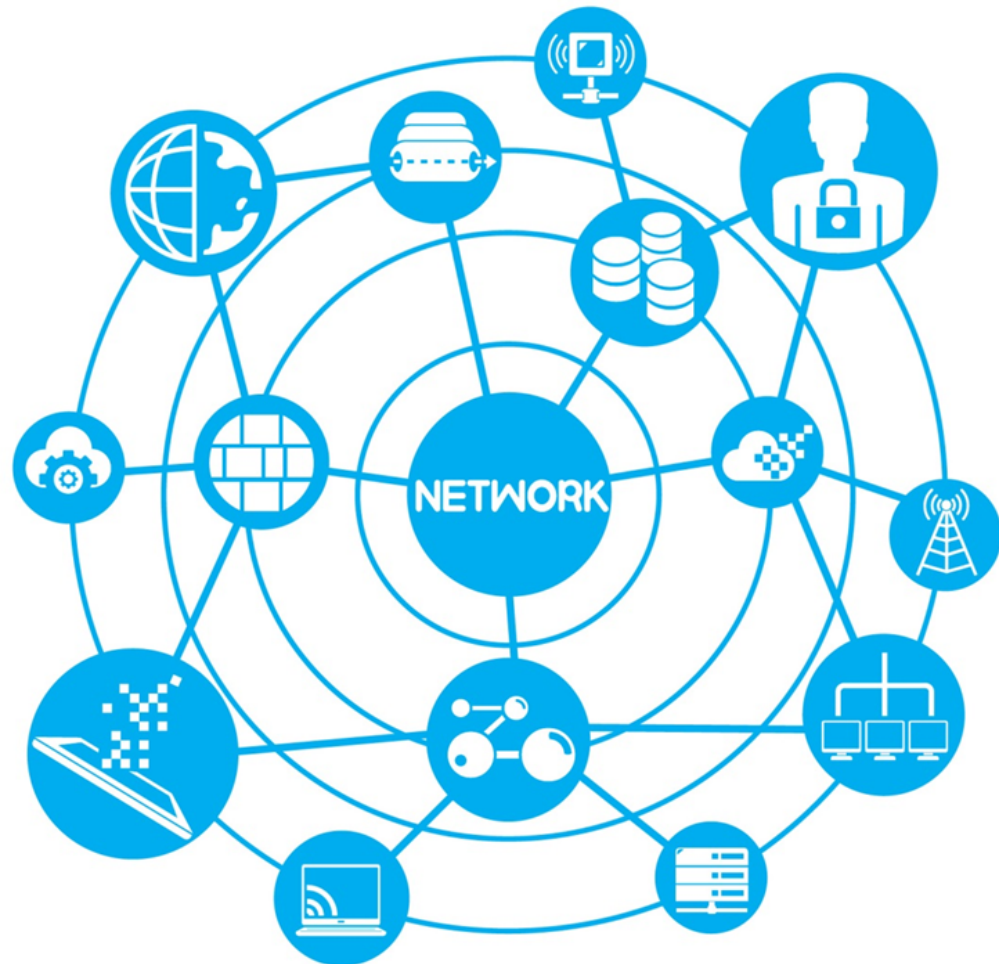
Digital
Cities

Digital
Well-
being

Digital Infrastructure

Digital Infrastructure – Building Europe's Infrastructure of Tomorrow

Focus on networked and distributed infrastructure and real time processing with built in security and privacy for novel applications that is cost-effective and energy-efficient



Priorities & Value Creation

Priorities

- Networking:
 - Green Mobile Broadband
 - Softwarisation
 - Internet of Things
- Cloud;
 - Distributed real time processing and
 - Distributed real-time analytics
- Cybersecurity
 - Privacy
 - Digital Id Management

Networking

Green Mobile Broadband

- Strategy
 - Mobile Access Networks; Access network infrastructure innovation via standardization and energy efficiency related to high-bandwidth solutions (e.g. “5G”)
- Achievements
 - Results/deliverables 2019: Demonstrated capability to manage 1000-fold traffic increase by 2020 in an energy-efficient way; Successful standardisation initiatives, incl. energy metrics standards adopted by regulatory agencies; Simulations tools for energy metrics; Substantial technology transfer and knowledge adoption by the partner companies.

Softwarisation

- Strategy
 - Break Overseas dominance in backbone technology via pushing disruptive SDN approach. SDN enables EIT Digital partners (e.g. major telco vendors and operators), to disrupt the market and reduce overseas dominance. Novel management solutions to support the operation of a multitude of massive network elements and devices to decrease of cost for operations - OPEX.
- Achievements
 - Results/deliverables 2019: Successful feasibility demonstrations; Initial market introductions of technology components; Portfolio of created and/or coached start-up companies; Deployment of SDN and virtualised networks prepared. Novel management products on the market based on self-* - management.



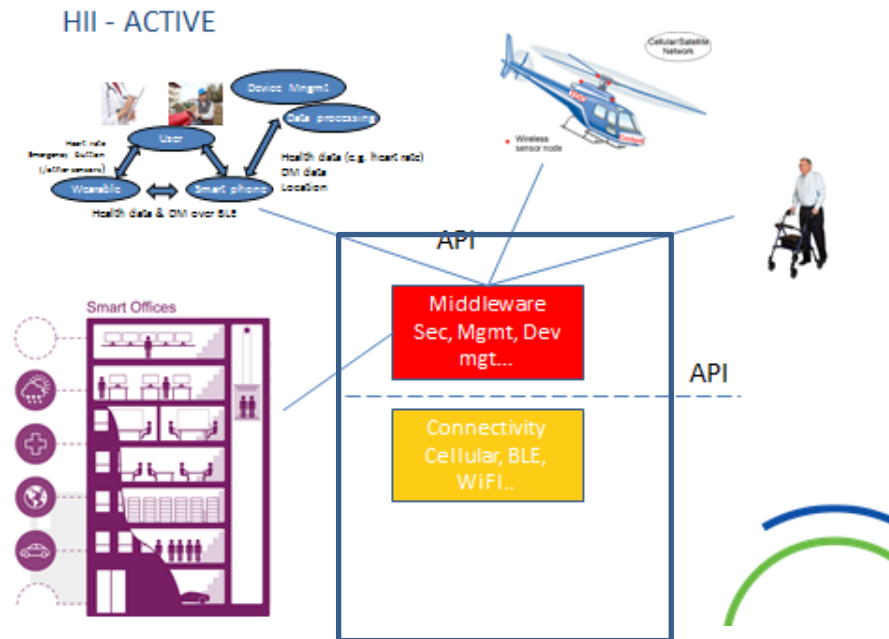
Internet of Things

- Strategy
 - Accelerate the introduction of IoT solutions by reducing hurdles via horizontal and modularization of the communications layer, extending cellular networks support for M2M communication. IoT is an emerging market where European stakeholders will benefit from a horizontal approach to efficiently address diverse societal challenges and by extending cellular networks support for M2M. Also focus on mission critical communication to support new vertical segments like processing or automotive industries.
- Achievements
 - Development and launch of a generic IoT communications platform and its use in key application areas; Readiness for broad deployment by 2019; Active start-up network “surrounding” the platform; Standardisation to achieve M2M support in networks.

Networking

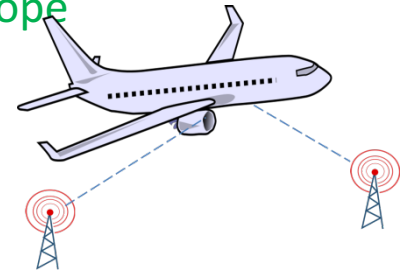
High Impact Initiatives

- Advanced Connectivity Platform for vertical segments

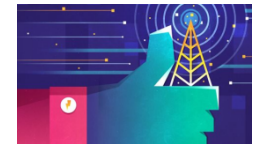


Regular activities

- Seamless DA2GC in Europe



- Telecom Diagnostics



- Rapidly deployable networks



Network scaleups

- **Evothings AB** - An application platform for the mobile IoT apps
- **Light Flex** –connected Printed active light in clothing
- **Neue Labs** – Automat(sensor) development system for IoT
- **Plug & Wear** – connected textiles sensors and actuators, conductive fabrics, and light emitting textiles.
- **Qarnot Computing** – Combining computing with heating
- **Sensefinity** -IoT to proactively monitor and manage your Cold Chain, food & drugs
- **Shortcut Labs** -IoT bluetooth button that is programmable - Flic
- **Teeptrak** - I o T based efficiency improvement in manufacturing
- **Tractive** -GPS Pet Tracking device for locating pets
- **Undagrid** – Meshed networking for luggage, asset tracking
- **Waylay** - orchestration engine for the enterprise Internet of Things enabling automation by connecting devices with enterprise IT systems and cloud
- **Cumucore** – Cloudbased Mobile Packet Core Network with SDN/NFV

Cyber Security

Cyber Security & Privacy - Purpose

- Put into practice innovative privacy-preserving and secure information technologies to protect sensitive data and the privacy of individuals.
- new products or services in the Security as a Service (SaaS) scenario.
- market-ready integrated security and privacy solutions for trustworthy cloud computing and IoT platforms, including both reactive and proactive cyber security tools.
- Focus on privacy-aware federated identification, privacy-aware data storage and sharing and data processing, end-to-end protection of communications (with lawful interception), protection against intrusions and spyware and malware, and user-controllable privacy policies.

Cyber Security & Privacy - *Data Privacy and Digital Identity Management*

- **Data privacy** is considered in a broad sense of protecting any sensitive data, e.g., personal, industrial, and financial. Data privacy encompasses data security and user control over sensitive data, from data collection, through data transmission and processing to data storage and sharing.
- **Digital Identity Management** relates to privacy-aware federated e-identification and strong e-authentication of physical or logical entities, e.g., persons, organizations, things and services, with unique or attribute-based identifiers. It leverages eIDAS regulation for public entities in EU and supports EU Digital Single Market as enabler of new ICT services and new business opportunities.

Cyber Security & Privacy - Strategy

- Address cyber security and privacy proactively, by deploying trustworthy and transparent innovative technologies bridging the gaps between available techniques and practice, including advanced cryptographic techniques such as homomorphic encryption, secure multiparty computation, attribute-based encryption, searchable encryption, and anonymity protocols.
- Apply data-centric and user-centric approaches.
- Promote security-by-design and privacy-by-design paradigms.
- Foster certification of secure software and hardware platforms.
- Raise social awareness about threats and solutions.
- In synergy with other EU organizations, influence EU legislation authorities to improve data protection laws.

Cyber Security & Privacy – Expected Achievements in Data Privacy

- Applied privacy-by-design paradigm and the minimality principle for balance with usability. Usage of user-controllable privacy policies and privacy assurance levels.
- Data privacy supported by cloud services implementing advanced cryptographic techniques including homomorphic encryption, attribute-based encryption, searchable encryption, secret sharing, and secure multiparty computation.
- Deployed end-to-end encryption for confidential communications, with lawful interception enabled.
- Techniques for controllable and privacy-friendly user profiling, big data analytics, and cyber investigation developed and put to market.
- Products for protection against intrusions and spyware and malware.

Cyber Security & Privacy – Expected Achievements in Digital Identity Management

- Working federated and privacy-aware ID management platform supporting multiple e-authentication protocols and various ID credentials relating to unique and attribute-based identifiers, conforming with STORK and FutureID and compliant with eIDAS **regulation. Built upon FIDES.**
- **Scalable integrated digital ID management platform for IoT.**
- **Tested and used cross border in EU for various web-based or mobile** services in public or private sectors. Use cases may include e-health, e-commerce, smart cities, e-government, e-academia, and other online trust services requiring identification.
- Enables multi-factor strong e-authentication beyond passwords and innovative forms of biometric authentication and leverages usage of secure hardware or software tokens for storing the ID credentials.

Security

Regular Activities

Security Operations Center for Critical Infrastructures

protects critical infrastructures such as industrial networks from advanced persistent threats

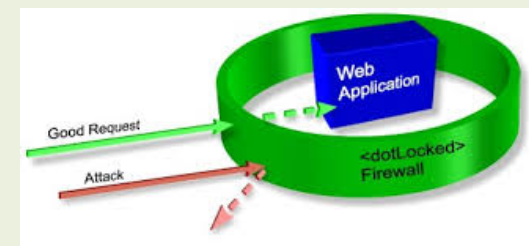


- ARTS-Android App Reputation Service

Automatic analysis solution for Android applications supporting different scalable security services



WAFFLE: Web Application Firewall for Large-scale phishing attacks



Cyber security scaleups

- **AWTech** - Document security
- **Chino** - Secure storage for data
- **Cleafy** - Web applications security
- **CryptTalk** - Communications security
- **DigiFlak** - EndPoint Security
- **GuardSquare** - Mobile applications security
- **JUSP** -Mobile applications security
- **KEIT** - Fraud Management
- **Kopjra** -Fraud Management
- **Miradore** -Mobile applications security
- **Mynigma** - Mail Security
- **Onegini** - Mobile applications security
- **qKey** - Access control
- **Security Matters** - Communications security
- **Sentryo** - Communications security
- **Storro Cobblue** - Security Administration

Data: Cloud, Big Data, AI

Cloud, Big Data & AI - Purpose

- Deliver ever more real-time, intelligent and distributed solutions in hybrid- and multi-cloud environment.
- Emphasis is on how to provide a secure, multi-tenant platform to analyse and improve business performance and customer experience based on big data, building on top of public cloud offering.
- Significant investment to open source technologies to ensure sufficient alternative / independent capability of advanced Cloud, Big Data & AI - enabled services in Europe.
- Organizations need to adapt their culture and ways of working towards a Lean Startup mindset to reap maximum benefits and competitive advantage of future possibilities.

Cloud, Big Data & Artificial Intelligence Strategy

- **Cloud** Value-add on top of “public clouds” and hybrid- and multi-cloud scenarios with a special focus to distributed cloud and real-time edge computing. Establish viable open source technology alternatives for any contingencies.
- **Big Data & AI** Invest in developing domain-specific computational models/algorithms that will enable self-learning and make services appear “intelligent”. Make use of distributed processing and real-time analytics to support new use cases.

Cloud, Big Data & AI – Expected Achievements

- New technologies for providing pervasive trust in hybrid- and multi-cloud environments. Established network of trusted cloud and value-add service providers.
- Demonstrated capability of secure, multi-tenant Big Data platform in hybrid- and multi-cloud environment. New business models supporting a variety of usage scenarios such as Big Data analytics as a self-service
- Successful feasibility demonstrations of domain-specific computational models/algorithms in selected vertical domains especially involving distributed processing and real-time-data/analytics. Initial market introductions of technology components; Portfolio of created and/or coached start-up companies.

Cloud computing

High Impact Initiatives

- Trusted Data Management with Service Ecosystem



Regular activities

- Trusted Data Safe Havens for Healthcare



- Cloud Platform for drone monitoring



- Sensemaking Service: Entity Linking for Big Linked Data



- HopsWorks



- Multi-channels AI-based personal assistant for schedule management

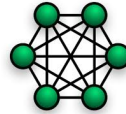


Scaleups 2016

Cloud, Networking and Cyber security



- 3D Repo
- Carbon Analytics
- Cloudesire
- Hello Soda
- Julie Desk
(WwPopp)
- LeanXcale
- SecludIT
- Severalnines
- Tanker
- Testfabrik
- Varaani Works



- Evothings AB
- Light Flex
- Neue Labs
- Plug & Wear
- Qarnot
Computing
- Sensefinity
- Shortcut Labs
- Teeprak
- Tractive
- Undagrid
- Waylay
- Cucumore



- AWTech
- Chino
- Cleafy
- CryptTalk
- DigiFlak
- GuardSquare
- JUSP
- KEIT
- Kopjra
- Miradore
- Mynigma
- Onegini
- qKey
- Security
Matters
- Sentryo
- Storro Coblue

Cloud related scaleups

- **3D Repo** -Cloud 3D Modelling
- **Carbon Analytics** -Cloud based carbon footprint reporting
- **Cloudesire** - Enterprise application marketplace, for easy and rapid provisioning of web/desktop applications on the cloud
- **Hello Soda** -Credit Management for reputation score
- **Julie Desk (WwPopp)**- AI personal assistant scheduling
- **LeanXcale** - Cloud and intelligent big data management, visualization and exploitation
- **SecludIT** – aautomated monitoring to prevent cyber attacks
- **Severalnines** -Cloud infrastructure with a solution for database cluster control and management
- **Tanker** - Data Privacy in Online and Mobile Applications, Services and Communications
- **Testfabrik** - Automated web testing on different browsers
- **Varaani Works** -Saves all your digital content, automatically backs up, and allows you to access, view, and share your content from any device



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