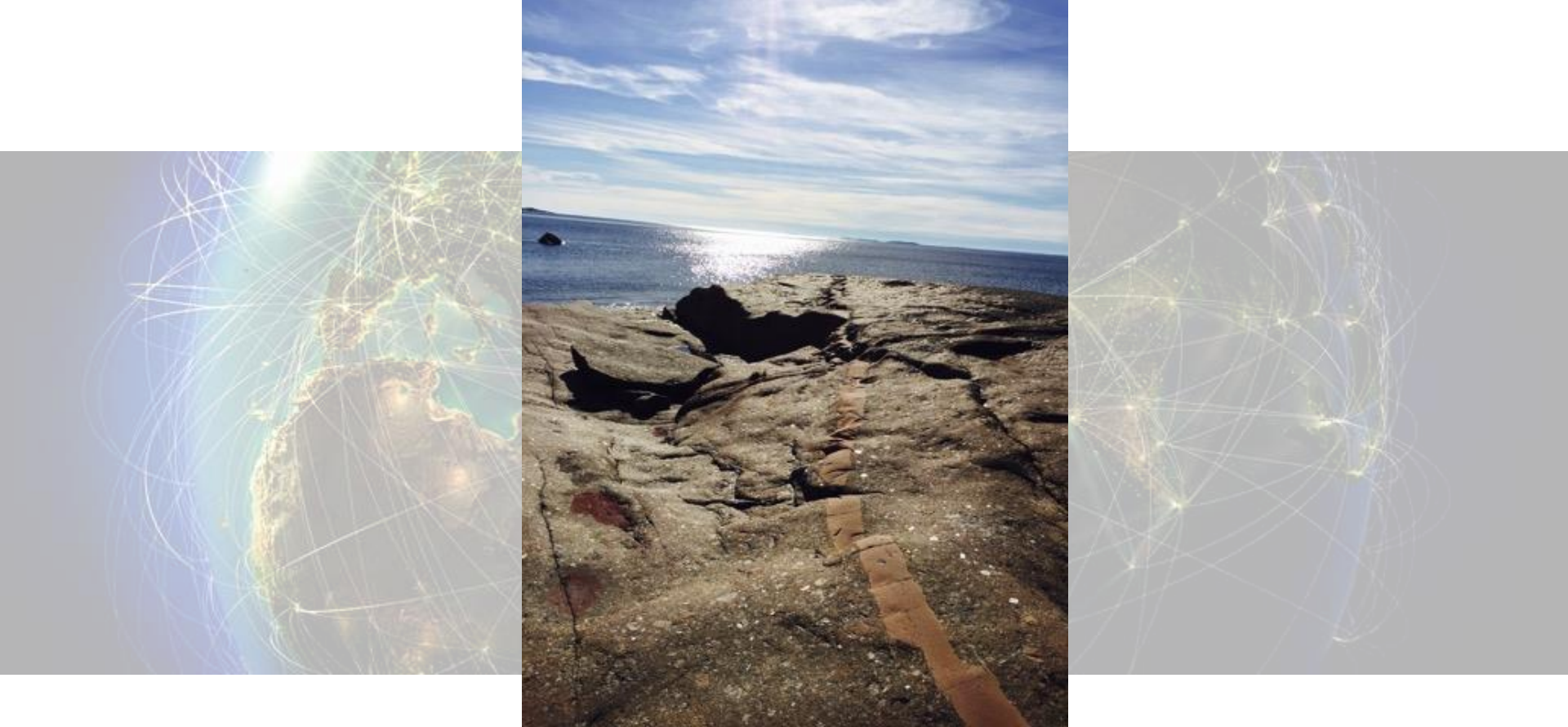




Mikä muuttaa rakentamista?

Perspektiiviä maailman ja bisneksen muutokseen

HIRSITALOTEOLLISUUS RY:N VUOSIKOKOUSSEMINAARI 2019

Oulu, 9.4.2019

Professori Markku Wilenius
Tulevaisuuden tutkimuskeskus, Turun kauppakorkeakoulu
Turun yliopisto
Unesco Chair

Kuka minä olen?



- Unesco professuuri 2016
- Tulevaisuuden tutkimuksen professori Turun kauppakorkeakoulussa vuodesta 2004
- Tulevaisuuden tutkimusta, opettamista ja kehittämistä yli 20 vuotta
- *Useita vuosia strategiayksikön johdossa maailman suurimmassa yksityisessä vakuutusyhtiössä Allianzissa*
- Rooman klubin jäsen
- VNK:n ennakointiluotsin jäsen
- Mukana muutamassa start-upissa
- Kahden säätiön puheenjohtaja
- Sitran hallituksen jäsen
- Viimeiset kirjat: Tulevaisuuskirja (2015, Otava), Patterns of the Future (2017, World Scientific)

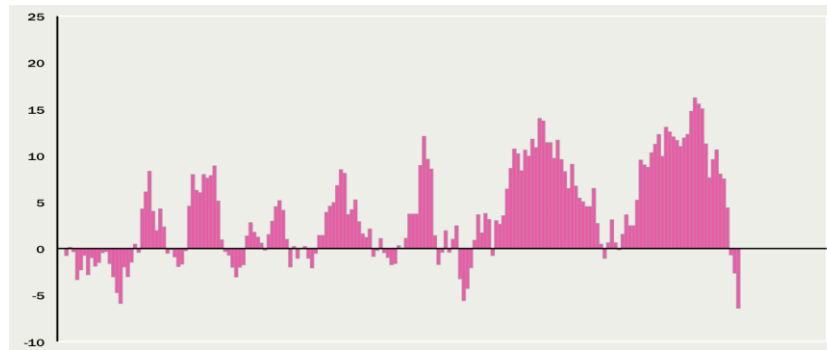




Kun aikakaudet vaihtuvat,
vaihtuvat myös ihmisten
intressit:
Esimerkkinä
Turun
Vanha
Keskusta



1) Maailmantalouden syklit

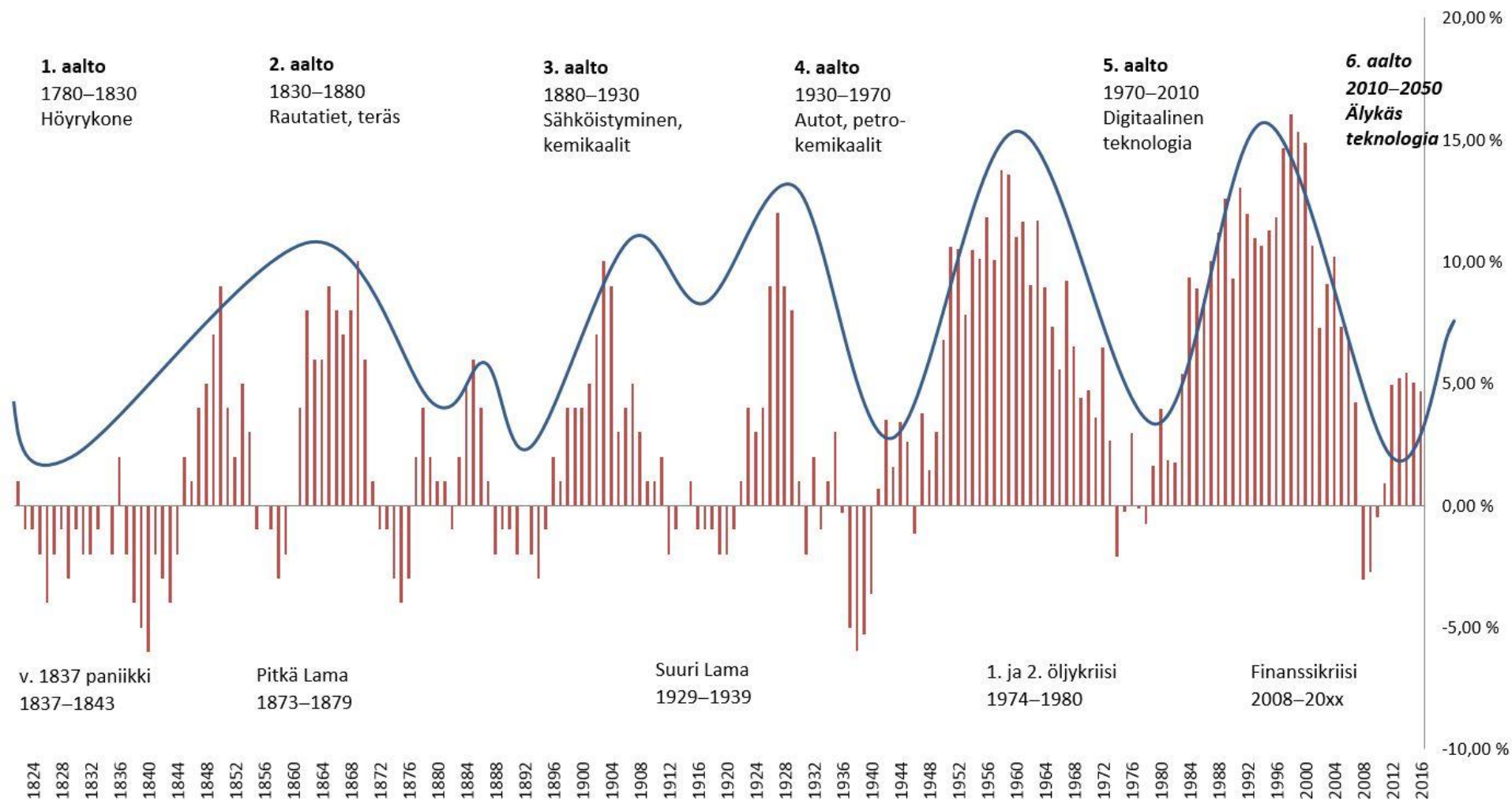




MANKOFF

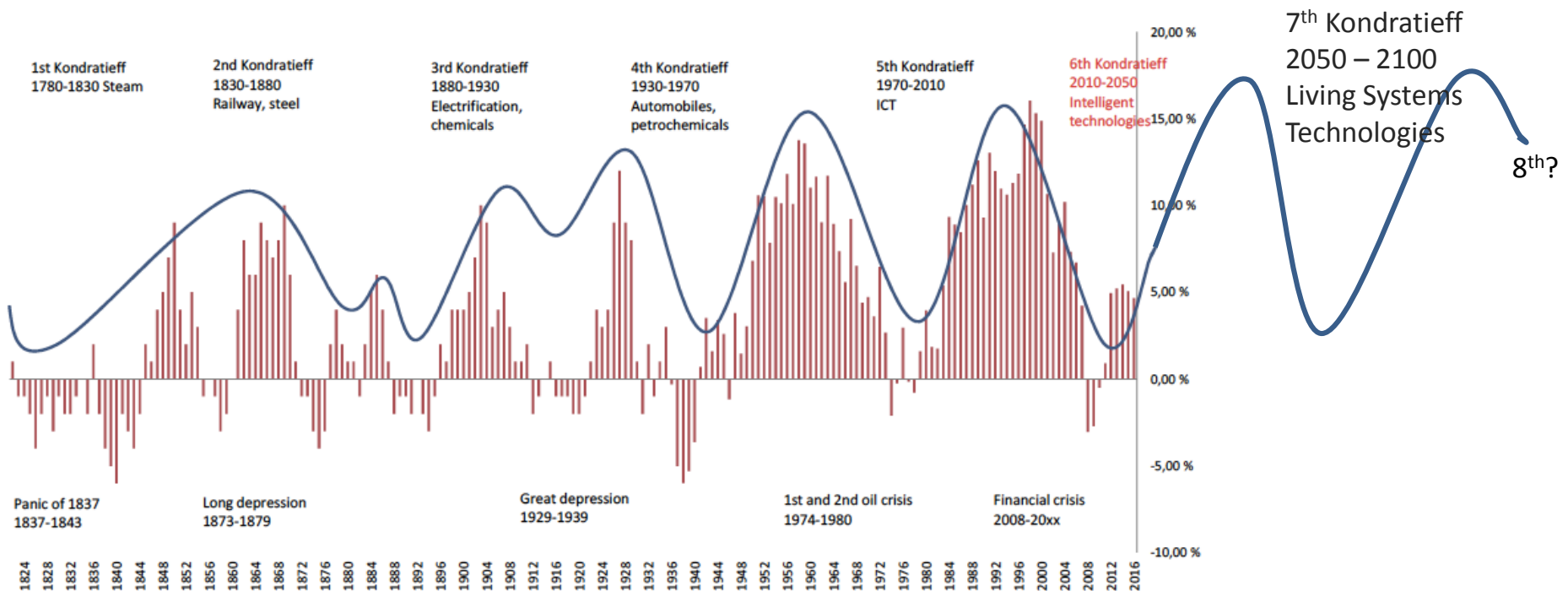
"Sir, the following paradigm shifts occurred while you were out."

KONDRATJEVIN AALLOT TEOLLISUUSYHTEISKUNNAN ALUSTA LÄHTIEN



Rolling 10-year return on the S&P 500 since 1814 until Dec 2016 (in %, p. a.). Source: Datastream, Bloomberg Illustration: Helsinki Capital Partners

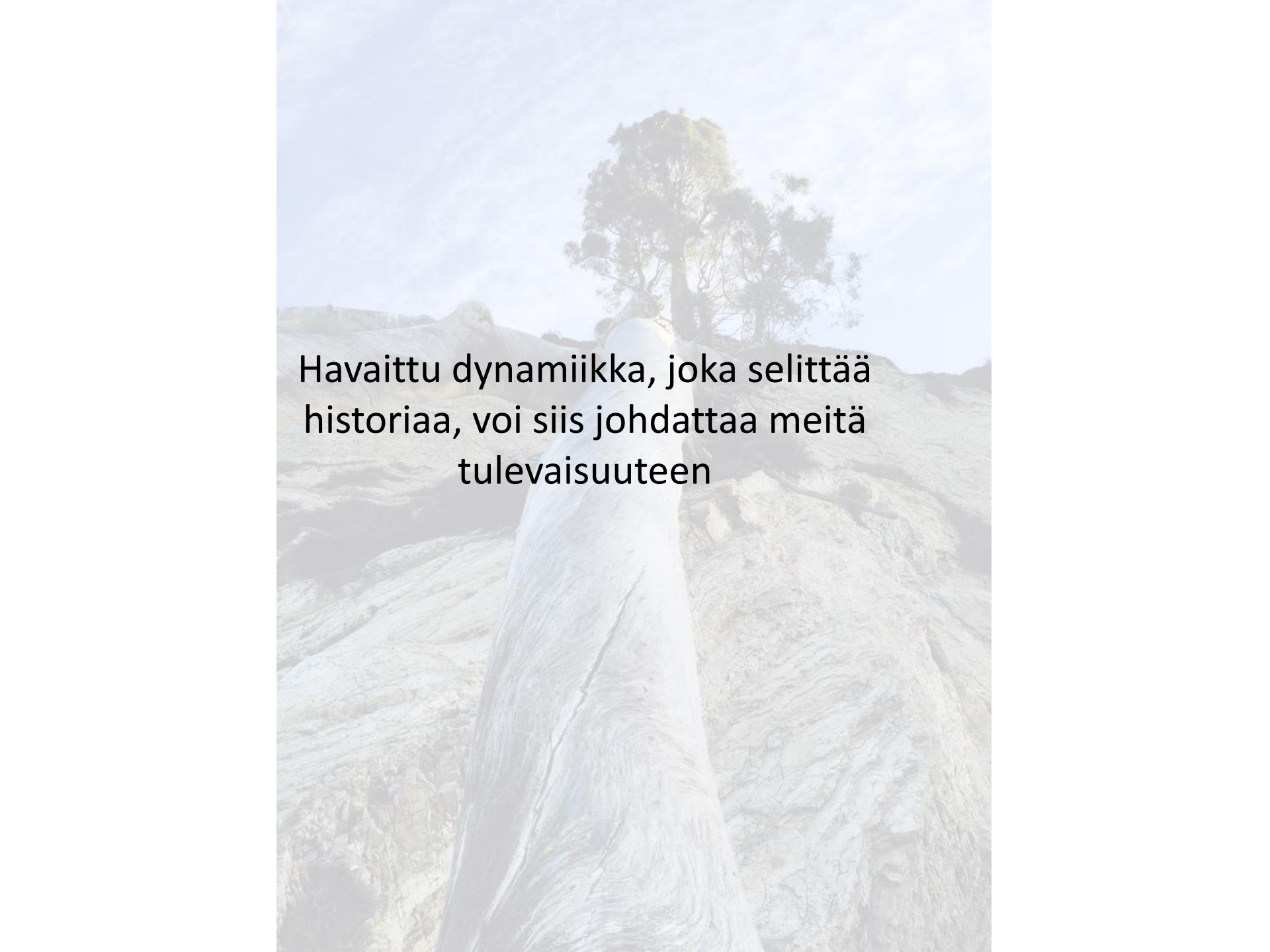
Ja vielä lisää aaltoja....



Syklien anatomiaa...

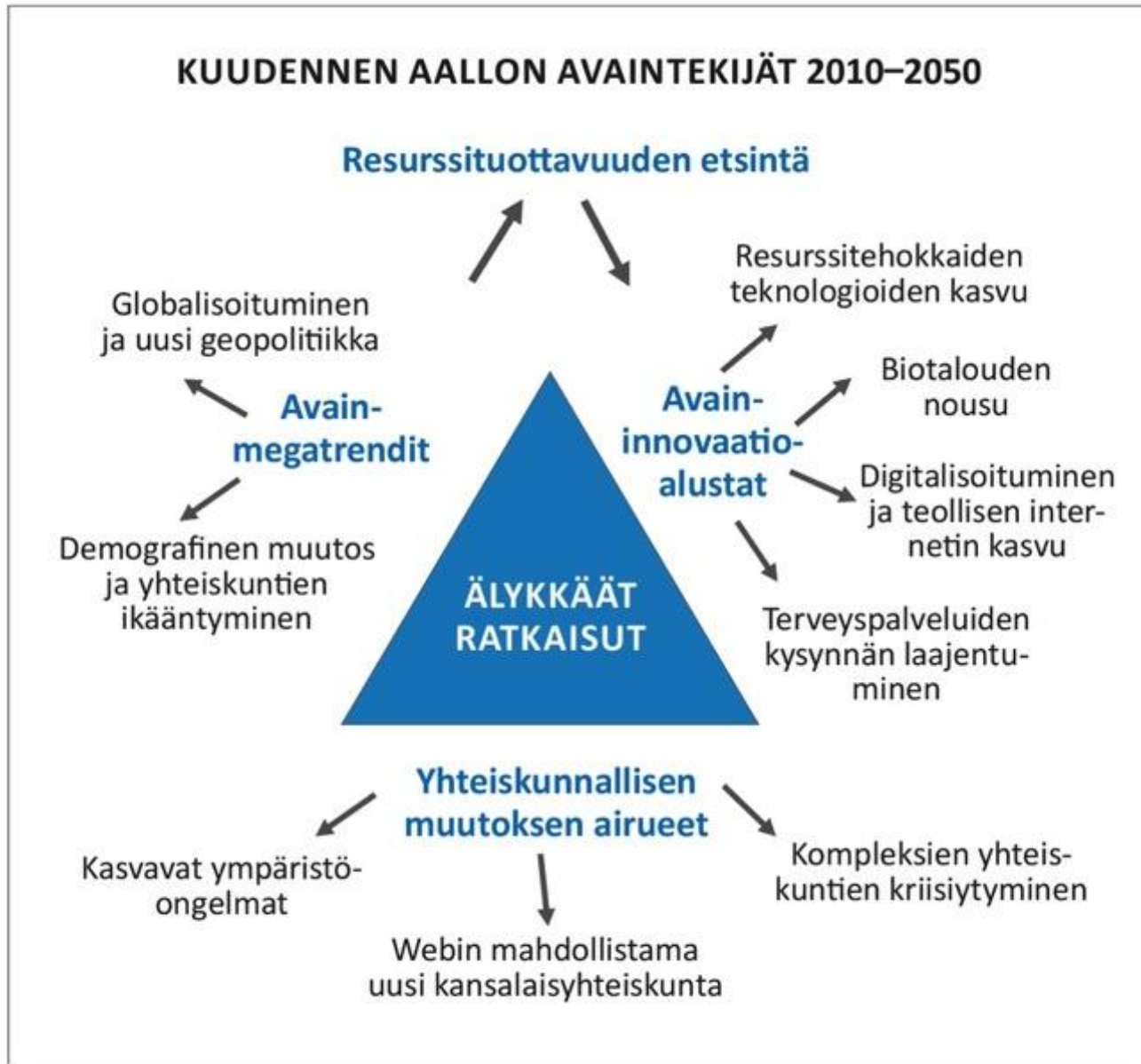
KONDRATJEVIN SYKLIT JA LIIKEVOIMAT

Syklit	1. sykli	2. sykli	3. sykli	4. sykli	5. sykli	6. sykli
Aikajakso	1780–1830	1830–1880	1880–1930	1930–1970	1970–2010	2010–2050
Veturi- teknologia	Höyry- kone	Rautatiet Terästuotanto	Sähköistyminen Kemikaalit	Autot Petrokemi- kaalit	ICT	Älykkäät, resurssi- tehokkaat teknologiat
Sovelta- misala	Vaatetus- teollisuus	Kuljetus	Massa- tuotanto	Henkilö- kohtainen liikkumi- nen	Infor- maation tuotanto ja viestintä	Materi- aalien, palvelujen ja energian liikkuminen
Inhimilli- nen näkö- kulma	Uusia välineitä perustar- peiden tyydyttä- miseen	Spatiaali- nen kasvu	Modernien mukavuuk- sien raken- tuminen	Vapauden kasvami- nen	Uuden vuoro- vaikutus- tilan muo- dostumi- nen	Ihmisen, luonnon ja teknologian integrointi



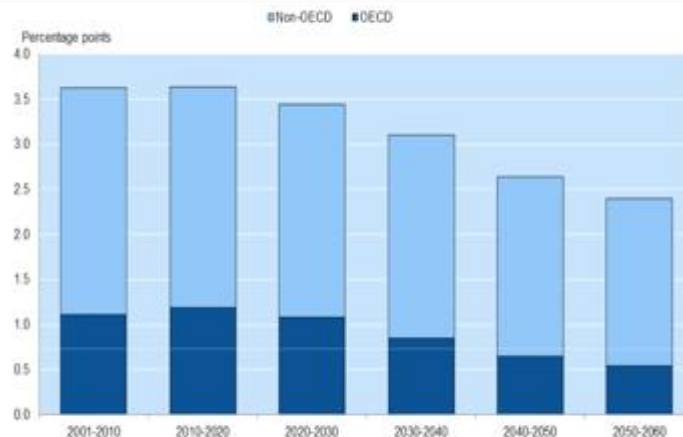
Havaittu dynamiikka, joka selittää
historiaa, voi siis johdattaa meitä
tulevaisuuteen

Kuudennen aallon avaintekijät (2010-2050)

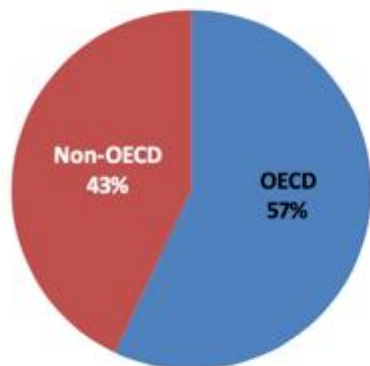


OECD:n mahti kutistuu kuudennessa aallossa

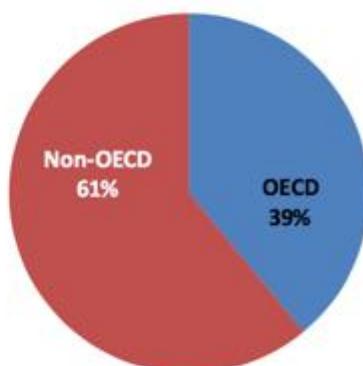
Contributions to
global growth



2010



2060



Shares in global GDP
(current PPPs)



Mitä todella tapahtuu talouden kehityksessä?

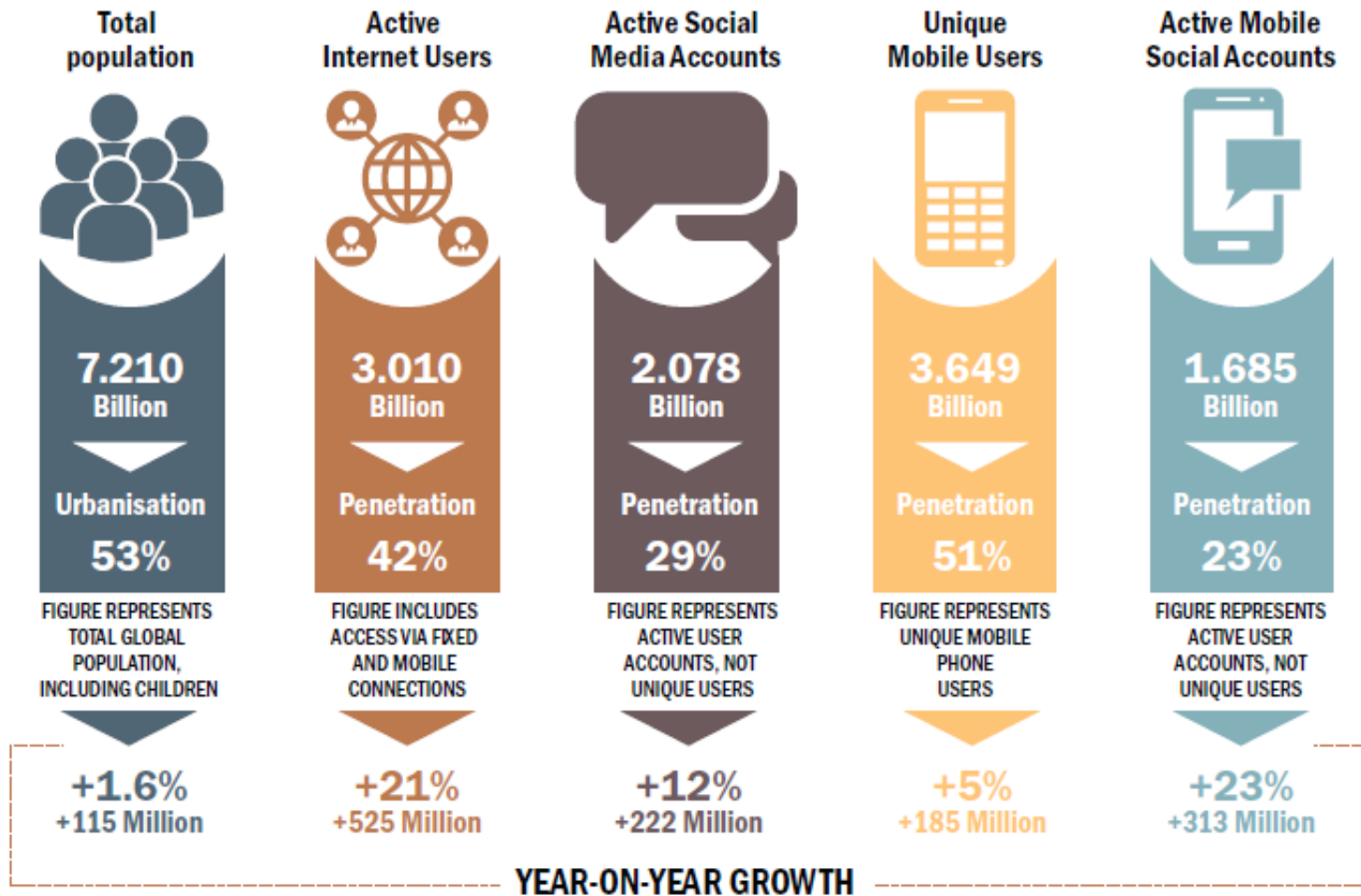
Nämä yritykset jatkavat uskomatonta voittokulkuaan...



Maa ilma digitalisoituu vauhdilla....

Global digital landscape and year-on-year growth

In total user numbers, percentage of penetration and growth, by category



Source: We Are Social, 2015

© World Newsmedia Network 2015

Selected Significant Climate Anomalies and Events July 2018

GLOBAL AVERAGE TEMPERATURE

July 2018 average global land and ocean temperature was the fourth highest for July since records began in 1880.

NORTH AMERICA

July 2018 ranked as the ninth warmest July since continental records began in 1910. The contiguous U.S. had its 11th highest July temperature (tied with 1998) since national records began in 1895. The state of California had a record warm July. Death Valley had the hottest month on record observed anywhere.

ARCTIC SEA ICE EXTENT

July 2018 sea ice extent was 13.2 percent below the 1981–2010 average—the ninth smallest July sea ice extent since satellite records began in 1979.

ASIA

Record warm temperatures were observed across parts of southern Asia. Overall, Asia had its sixth highest July temperature on record.

SOUTH KOREA

South Korea had its second warmest mean and maximum July temperatures on record.

EUROPE

Europe had its second highest July temperature departure from average. Several European countries had a July temperature that ranked among the six warmest Julies on record.

SOUTH AMERICA

Warmer than average conditions were present across northern South America, while near- to cooler-than-average conditions were present across southern South America. Averaged as a whole, South America had its smallest July temperature departure from average since 2012.

AFRICA

Africa had its second highest July temperature since 1910. On July 5 the city of Ouargla in Algeria recorded a maximum temperature of 51.3°C (124.3°F)—possibly the highest temperature on record in Algeria.

ANTARCTIC SEA ICE EXTENT

July 2018 sea ice extent was 1.9 percent below the 1981–2010 average—the eighth smallest July sea ice extent on record.

AUSTRALIA & NEW ZEALAND

Australia and New Zealand had their fifth highest July temperature on record.

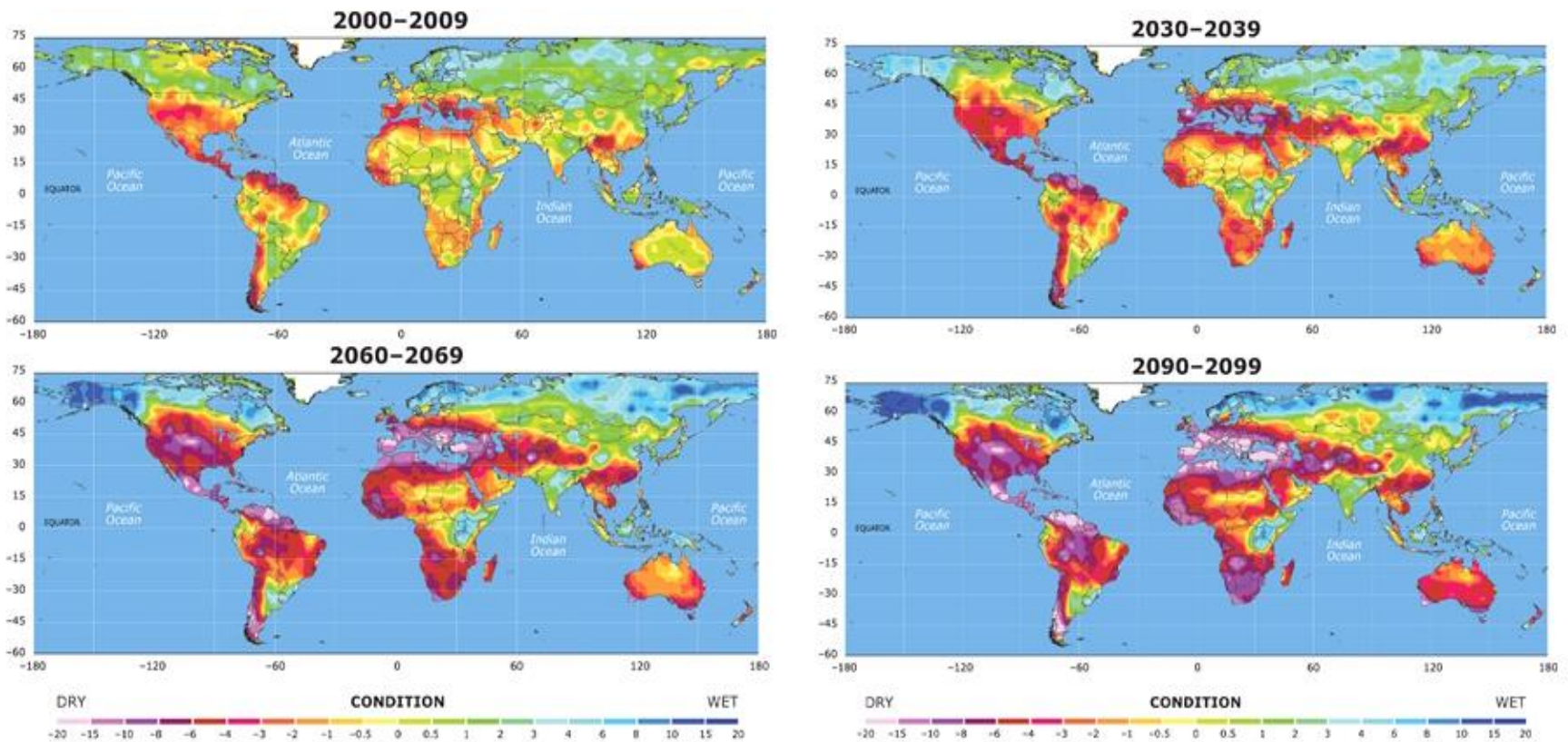
Please Note: Material provided in this map was compiled from NOAA's State of the Climate Reports. For more information please visit: <http://www.ncdc.noaa.gov/sotc>



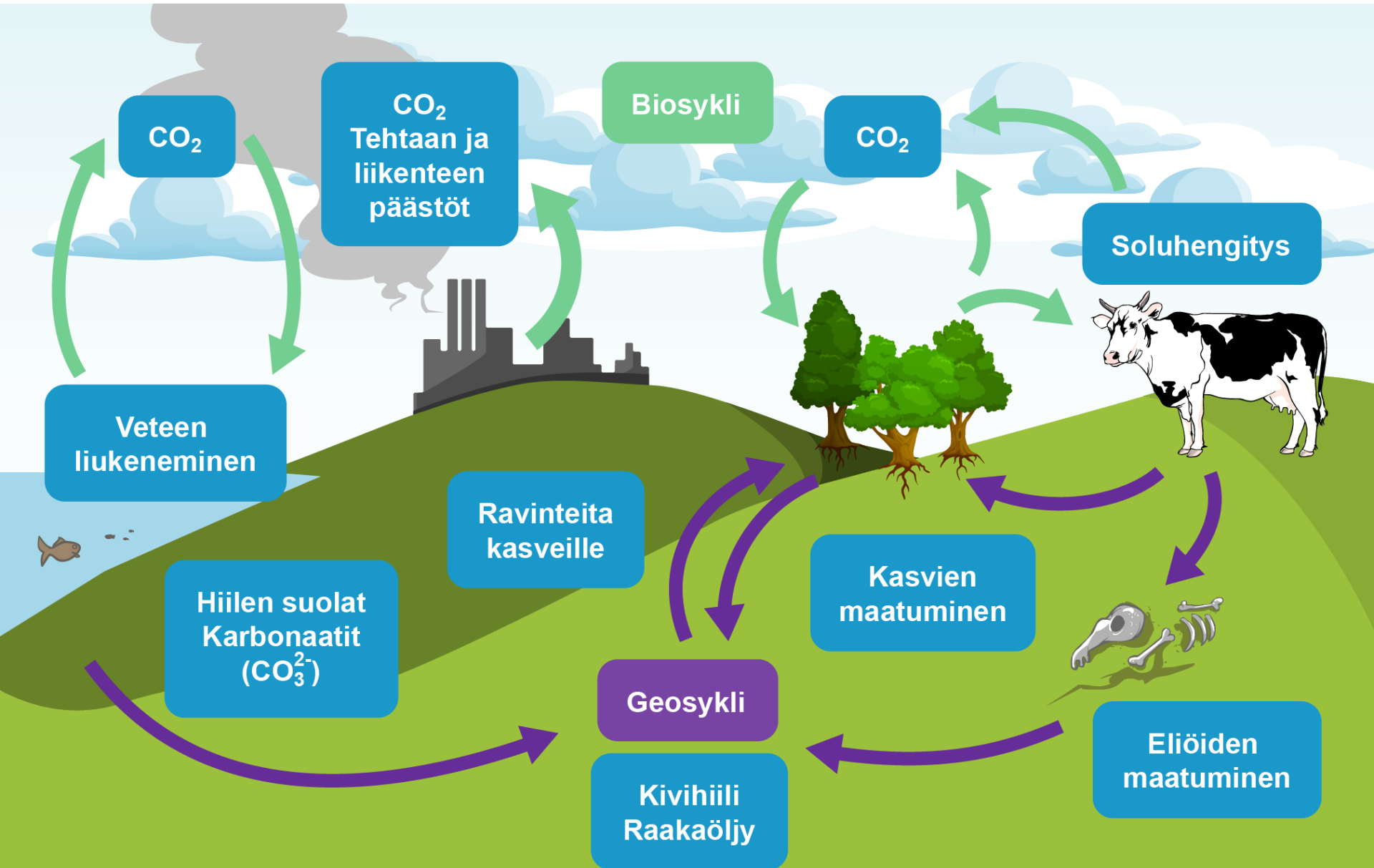
Ja samalla ilmastonmuutos ja veden niukkeneminen tulee aiheuttamaan enemmän yhteiskunnallista kuohuntaa kuin ehkä mikään muu...



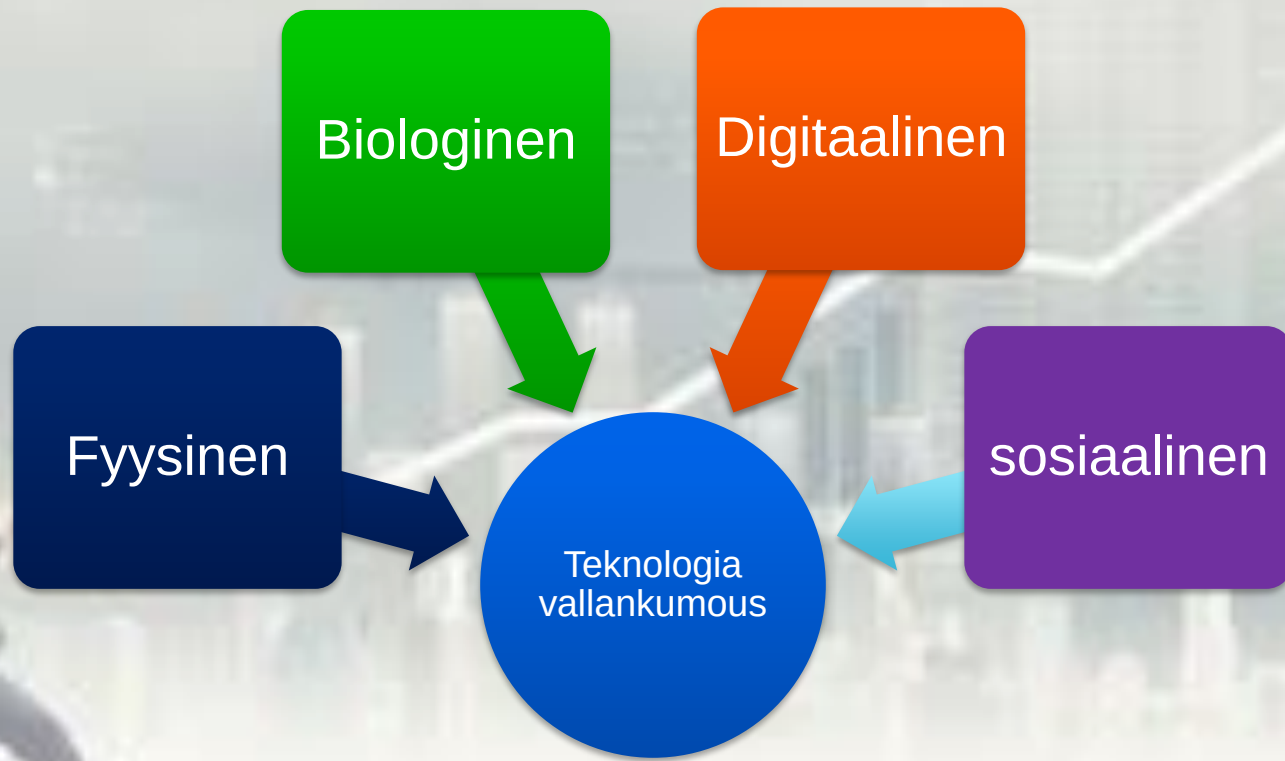
4°C Implications



Olennaista on se, miten hiili kiertää systeemissämme...

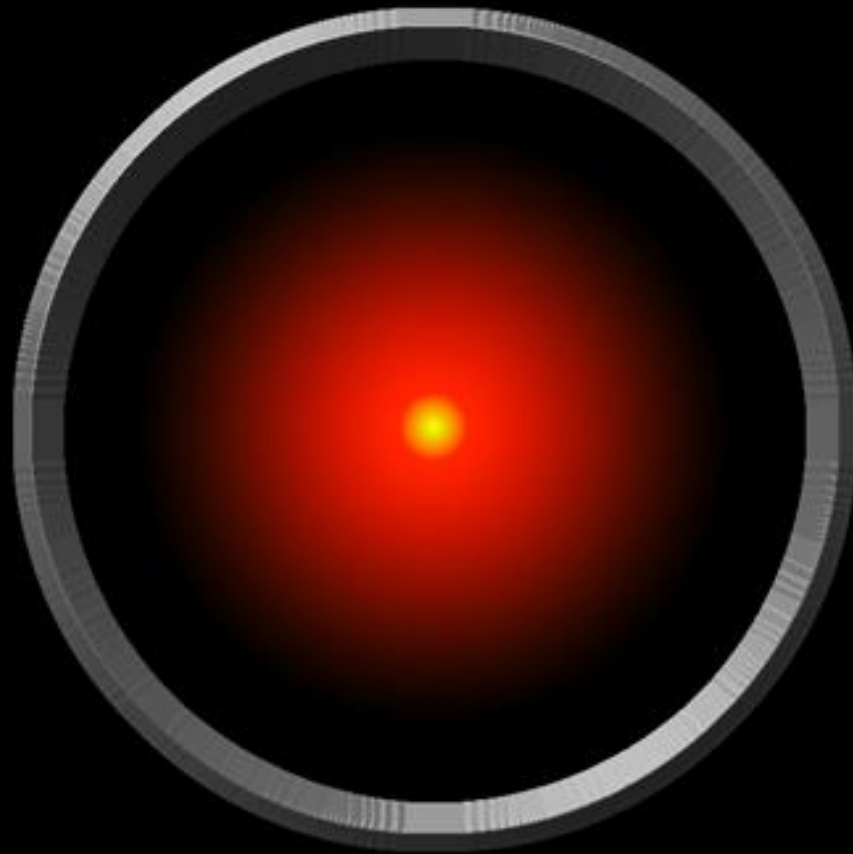


Muutos on siis moniulotteinen...



Entä koneet ja älykkyys?

I'm sorry Dave,
I'm afraid I can't do that.



Machine Intelligence LANDSCAPE

CORE TECHNOLOGIES

ARTIFICIAL INTELLIGENCE

IBM Watson
Numenta
Cycorp
Reactor
MetaMind
ai-one
Research
Scaled
TP-USA-102

DEEP LEARNING

Vicious
Facebook
Google
SKYMIN
Vision
Factory
Baidu
Ersatz
SignalSense

MACHINE LEARNING

Rapidminer
Context
DataHippo
DataRPM
Liftgate
Phat
Sense
GraphLab
Alone
Synn

NLP PLATFORMS

Cortico.io
Luminoso
Idibon
wit.ai
Marubai

PREDICTIVE APIS

AlchemyAPI
Google
Algorithmia
PredictionIO
MINDS
big
Indico
Expect
Labs

IMAGE RECOGNITION

Clarifai
Madbits
DNNresearch
VISENZE
lookflow

SPEECH RECOGNITION

GRIDSPACE
popUP
archive
NUANCE

RETHINKING ENTERPRISE

SALES

Predict
RelateIQ
CLARABOOL
infer
AVISO
NGDATA
FRAMED
Intelluity
Carusita

SECURITY / AUTHENTICATION

Crossmatch
CyberVest
CYLANCC
C-njor
bitsight
blonym

FRAUD DETECTION

sift science
TheatMetrix
Brighterion
Secure
feedzai
Verapin

HR / RECRUITING

TalentBin
predikt
Connectifier
gild
hiQ
connect

MARKETING

Brightfuel
CommandIQ
RADIUS
Talkpath
Bloomreach
AIRPR
people
pattern
Frederick

PERSONAL ASSISTANT

Siri
Cortana
tempo
KASISTO
viv
Google now
cleversense
Rebinlabs
fuse machines
CLARA LABS

INTELLIGENCE TOOLS

ADATAQ
Palantir
Quid
Digital Reasoning
FirstRain

RETHINKING INDUSTRIES

ADTECH

Metamarkets
Rocketfuel
Adbrain
dstillery
YieldMo

AGRICULTURE

BlueRiver
Greeneye
The Climate Corporation
tule
terrasent
Hologic
tute

EDUCATION

Declarra
Knewton
Coursera
Khan Academy
K12
Khan Academy

FINANCE

Bloomberg
Alphasense
Dataminr
Kenshco
Binafix

LEGAL

Lex Machina
Counselytics
Judicata
Brightleaf
Ravel
Brevia

MANUFACTURING

Sight Machine
Microscan
IVISYS
Bosch Rexroth

MEDICAL

Parzival
Genoscreen
Grand round table
transcriptic
Zephyr
bingo
TUTE

OIL AND GAS

Kaggle
Tachyus
Future
AYASDI
biota

MEDIA / CONTENT

Outbrain
Sailthru
Prismaic
newsie
Wovii
ai.com

CONSUMER FINANCE

Affirm
LendingClub
Kabbage
iPledge
Guard
LendUp

PHILANTHROPIES

DataKind
Data Guild
thorn

AUTOMOTIVE

Google
T
Cruise

DIAGNOSTICS

Enlithic
lumia
3SCAN
enlithic

RETAIL

Bay Sensors
Prism Skylabs
celect
euclid

RETHINKING HUMANS / HCI

AUGMENTED REALITY

APX
HETA
Bilippar
Layar

GESTURAL COMPUTING

Thalmic Labs
Leap
Gesturetek
Omni
Leap
3Gear
nod

ROBOTICS

Intel
Robot
and
Liquor Robotics
SoftBank
Covariant

EMOTIONAL RECOGNITION

Affectiva
Emotion
Cognito

SUPPORTING TECHNOLOGIES

HARDWARE

NVIDIA
Qualcomm
Rigetti
Xilinx
Meyn

DATA PREP

Trifacta
tamr
Alation

DATA COLLECTION

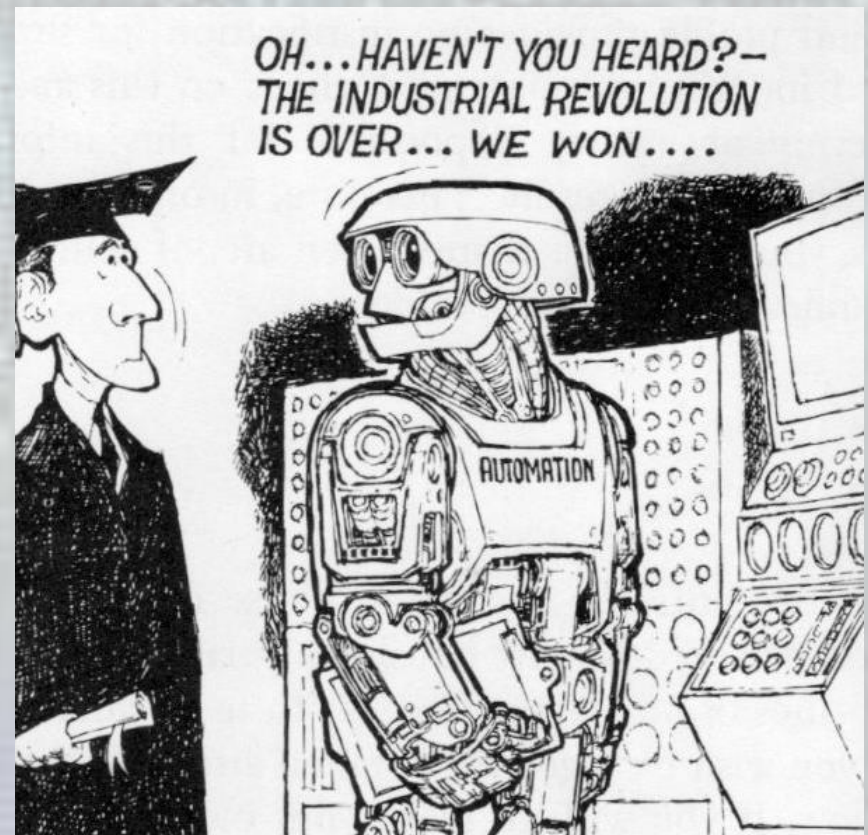
diffbot
kimono
CrowdFlower
Workfusion
import

AI:n yhteiskunnalliset vaikutukset tulevat olemaan syvällisiä...

Mitä tutkimus sanoo:

- 47% USA:n työpaikoista tulee häviämään seuraavan 10-20 aikana...(Frey & Osborne)
- Jokaista viittä naisilta vietyä työpaikkaa vastaan tulee vain yksi uusi (WEF 2017)
 - Erityisesti taloushallinnon työpaikat katoavat

Mitä robotit sanoo:



Me olemme siirtyneet aivan uuteen aikakauteen globaalisti



100 000–10 000
**HUNTER-GATHERER
SOCIETIES**

Energy: Domestication of fire, cooked meat - increase in brain size.
Communication: Spoken language
Society: Organised tribes



10 000–1700
**THE AGRICULTURAL
SOCIETIES**

Energy: Domestication of plants and animals
Communication: Written language
Society: Chiefdoms, kingdoms, city-states, empires, early nation-states



1700–2000
**THE INDUSTRIAL
SOCIETIES**

Energy: Fossil fuels, steam engine, combustion engine, electricity, nuclear
Communication: Printed texts, radio and television, mass media, internet
Society: Democracy, the welfare state, information society, globalisation



2000–
**A FOURTH INDUSTRIAL
REVOLUTION?
A GLOBAL BRAIN?**

Energy: Renewables, smart grids
Communication: Internet of everything, artificial intelligence
Society: Peer-to-peer society of networked citizens, automation of both material and immaterial production



Mitkä avaintrendit vievät meitä siis kohti tulevaisuutta?



Kaupungistuminen



Kestävä kehitys



Digitalisaatio

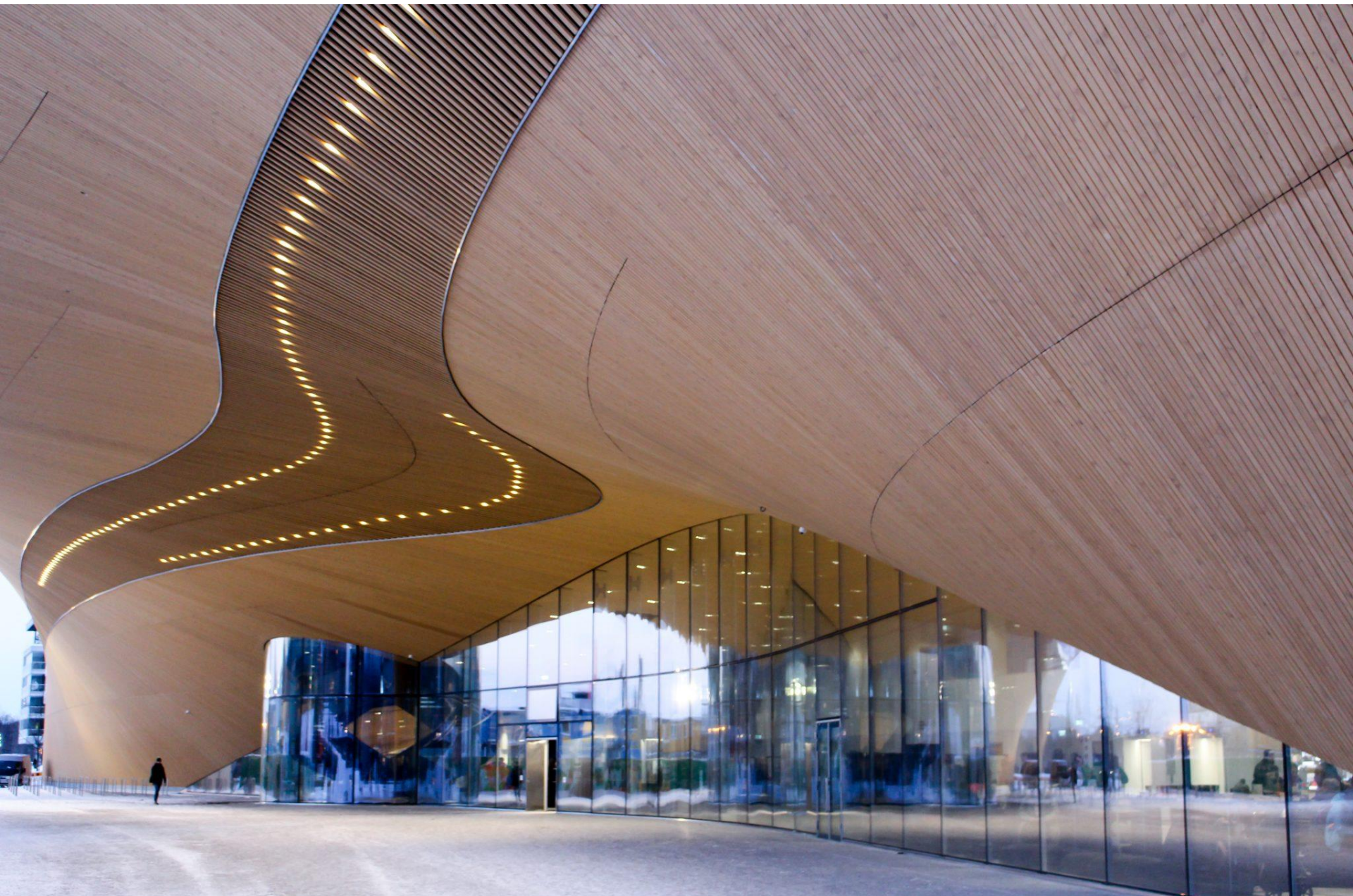


Globalisaatio

Mitkä periaatteet siis ohjaavat rakentamista tulevaisuudessa?



ANNA UUSI PERSPEKTIIVI!



LUO IHMISEN KOKOISIA TILOJA!



TUO VIHREÄ JOKA PAIKKAAN!



Hämeenkatu yliopistoja ja kupittaan tiedemaailmaa yhdistävänä vihreänä bulevardina

RAKENNA KAUNIISTI JA IHMISLÄHTÖISESTI!



Turun ilta-aurinkoon avautuva kulttuuribulevardi

JA OLE ROHKEA!



Kulttuurin ja elämyksien ilta-aurinkoon avautuva ranta

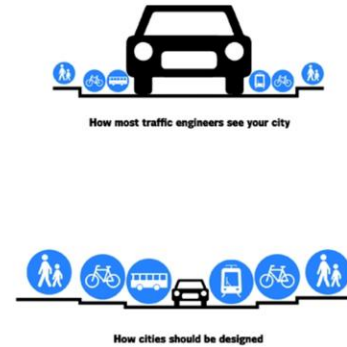
Älykkäät ratkaisut voittavat tulevaisuudessa...



Älyliikennetarkaisu ovat osa joukkoliikennejärjestelmää



Kevyen liikenteen yhteyksien parantaminen



Kevyt liikenne ja joukkoliikenne keskiössä



bulevardisoidaan



Kaupalliset toimijat voivat hyödyntää autoilta vapautunutta tilaa



Shared space -kadut keskustassa



Autoliikenteeltä rauhoitetut kadut puistomaisina tiloina

Ja se määrää miten kuluttajien arvot muuttuu...



Source: Customer Centric Business Study in core markets (F, D, I, US), Allianz GER&CD

Ennakointi ei ole koskaan helppoa...



"I think there is a world market for maybe five computers."

-- Thomas Watson,
chairman of IBM,
1943

"Heavier-than-air flying machines are impossible."

-- Lord Kelvin, president, Royal Society,
1895.

"Drill for oil? You mean drill into the ground to try and find oil? You're crazy."

-- Drillers who Edwin L. Drake tried to enlist to his
project to drill for oil in 1859.

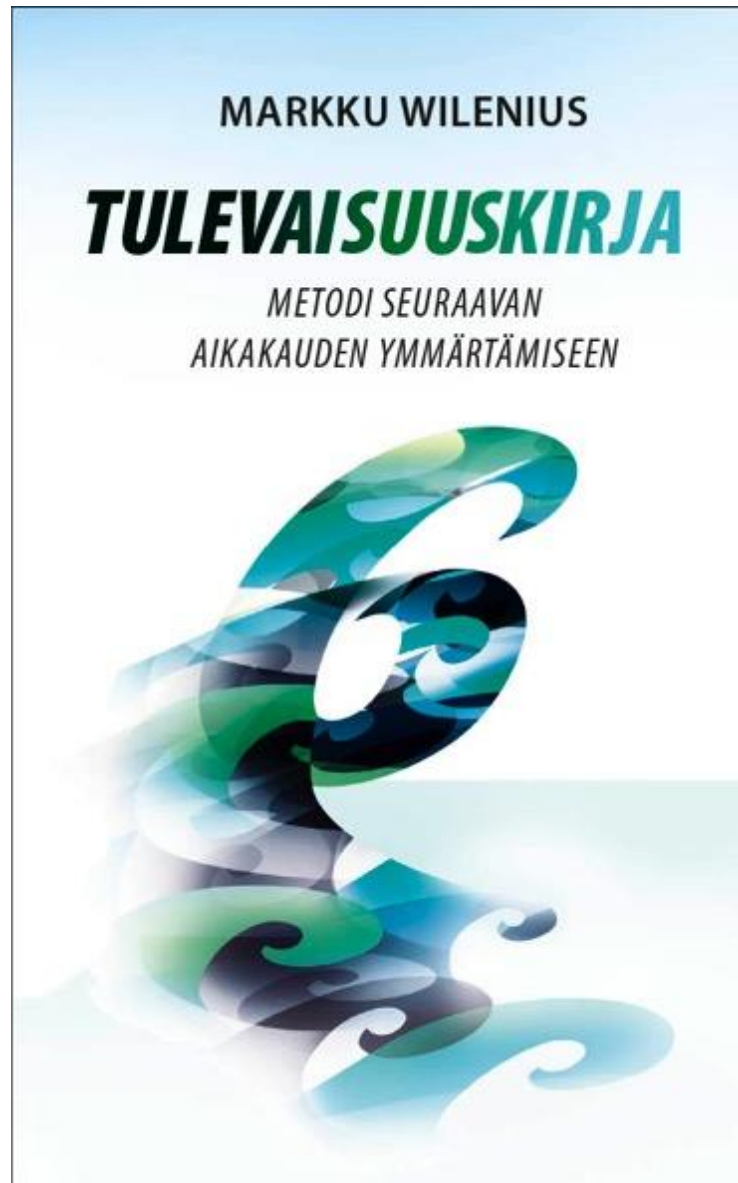
"Who the h__ll wants to hear actors talk?"

-- H.M. Warner, Warner Brothers, 1927.

"There is no reason anyone would want a computer in their home."

-- Ken Olson, president, chairman and founder of Digital Equipment Corp., 1977

Lisää asiasta Otavalta ilmestyneestä kirjastani



Vähän aikaa sitten ilmestynyt uusi kirjani:

PATTERNS OF THE FUTURE

Understanding the Next Wave of Global Change



Patterns of the Future explains the current world using the theory of long-term development waves (Kondratiev waves). Markku Wilenius, Professor of Futures Studies, argues that we are now entering the sixth wave: the age of intelligent, integrated technologies, helping to restore the balance between humans, technology and nature by radically improved material and energy efficiency and a wiser use of human potential.

The unfolding sixth wave will challenge our current values, institutions and business models. Using a systems-based approach, *Patterns of the Future* analyses how corporations and the public sector can navigate in the sixth wave. Case studies look at specific examples of this, using high-profile companies to demonstrate both the best- (and worst-) case scenarios of innovation for change.

This book spans concepts from multiple disciplines in the social sciences, making it relevant not only to undergraduate and graduate students in futures studies, environmental studies, economics, and business, but also national policymakers, think tanks, corporate operators and indeed for any one seriously interested in the future.

PATTERNS OF THE FUTURE
Understanding the Next Wave of Global Change

PATTERNS OF THE FUTURE

Understanding the Next Wave of Global Change

Markku Wilenius

Foreword by **Tarja Halonen**



Wilenius

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World Scientific

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