

Welcome to
Sectra Capital Markets Day
with focus on cybersecurity

Participants

Sectra Communications

- » Simo Pykälistö, President
- » Fredrik Sundström, National Security
- » Robert Lidquist, Authorities and Enterprise Security
- » Lasse Larsson, Critical Infrastructure Security
- » Jonathan Jogenfors, Cybersecurity Research manager

Sectra AB

- » Torbjörn Kronander, President & CEO
- » Mats Franzén, CFO
- » Helena Pettersson, Financial markets & press relations

Swedish National Communication Security Authority

- » Pia Gruvö, Head of the Crypto and IT Security Department/Director

CMD 2019 Cybersecurity

Sectra – Knowledge and Passion



SECTRA
Knowledge and passion

Main business areas



IT for medical imaging

Cybersecurity

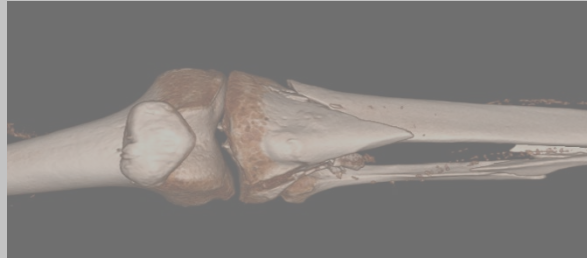


Growth opportunities outside of main business

Business Innovation



Medical education



Software tools for
orthopedic surgery



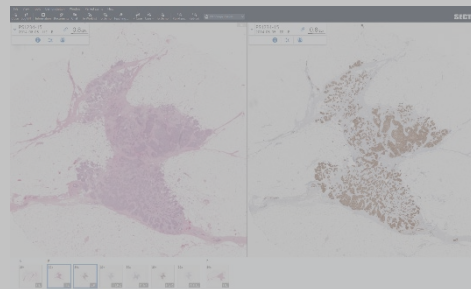
Research: AI and
Machine Learning

Secure Communications



IT security for
critical infrastructure

Imaging IT



US market
Digital pathology

Philosophy – Markets –



- A market must be big enough!
- Profitable growth is easier in growing markets
- Ideal growth markets are forced to grow by external factors
- The healthcare and cybersecurity worlds are in rapid change, and:

*"Where there is change,
There is margin!"*

Philosophy – Customers



Quality is profitable!

“Eat your own dogfood!”

How do you build lasting competitive advantage?

Product?

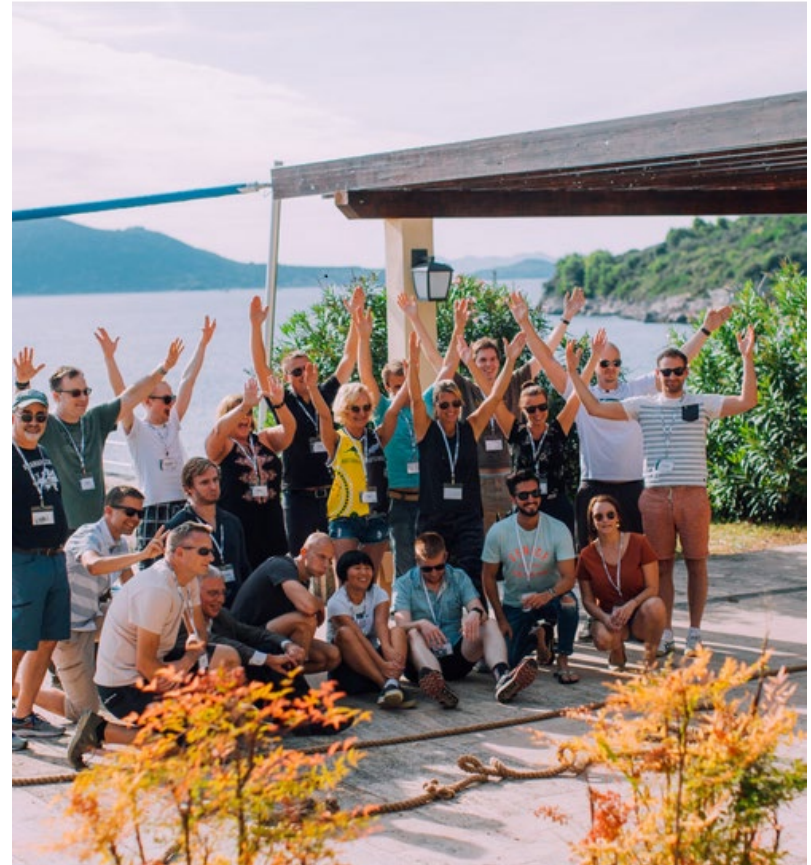
Promotion?

Place?

Price?

Process?

People!



Philosophy – Shareholders

If you have:

- Happy customers
- Happy employees
- Perseverance and reasonable cost control
- A rational long-term strategy in growing markets
- Then shareholders WILL be happy



Cybersecurity

Market drivers



32 million patient records were breached in the first half of 2019

That's more than double the 15 million hacked in all of 2018.



Christine Fisher, @cfisherwrites
07.31.19 in [Security](#)

0
Comments

357
Shares



noipornpan via Getty Images

More than 32 million patient records were breached between January and June 2019. That's more than double the 15 million medical records breached in all of 2018, says healthcare analytics firm [Protenus](#). According to the company, the number of disclosed incidents rose to 285 in the first half of the year, and the longstanding trend of at least one health data breach per day shows no signs of slowing down.

Sweden 2017

The logo for SVT Nyheter, featuring the text "svt" in white lowercase letters followed by a red star icon and the word "Nyheter" in white lowercase letters, all on a red rectangular background.

svt Nyheter

2017-01-09

FRA: IT-spioner förbereder attack mot elnätet

Utländska IT-spioner har gjort förberedelser för att slå ut svensk infrastruktur som elnät och kommunikationssystem. Det avslöjar Försvarets Radioanstalt i dag för SVT. Konsekvenserna om det svenska elsystemet slås ut blir dramatiska.

– Då skulle mycket av det normala samhällslivet bryta samman, säger Mikael Odenberg, generaldirektör för Svenska Kraftnät.

UK 2017

Hospitals

NHS trust cancels operations after computer virus hits IT system

North Lincolnshire and Goole trust shuts down most of its network and cancels appointments and routine surgery at three hospitals

Matthew Taylor

Monday 31 October 2016
18.49 GMT



Shares

44



Save for later



Emergency cases are being redirected to neighbouring hospitals. Photograph: Christopher Furlong/Getty Images

All appointments and routine operations have been cancelled at three hospitals after a computer virus attacked critical systems.

Problem areas to adress

- You, and I, are wire-tapped!
 - Threatens individuals, companies, nations and society!
- Our most critical infrastructure is controlled by IT. It needs protection!
- Everything goes mobile.
Mobile systems must be as secure as stationary.
- Security must be super simple to use, or it will not be used.



Software solutions can be cracked

The iPhone break

- A terrorist in California had an iPhone which was locked
- Neither CIA, FBI nor Apple could open it
- After some trials (3?) the phone would erase all content
- The Israelis cracked it by dumping the entire software of the phone then emulating the iPhone hardware on a supercomputer
- And by brute force trying to open "one phone after the other"
- This means NO software solution is safe!

Encryption secrets in hardware

- A software only system can never be secure!
- Some initial keys, random generators etc MUST be locked down in hardware
- Sectra does all encryption on assured levels in hardware

Some highlights from the Q1 report

Secure Communications

Acquisition of the assets of the Swedish IT security company **Columbitech**, including the shares in its US subsidiary.

Broadens portfolio with a world leading mobile VPN/4.

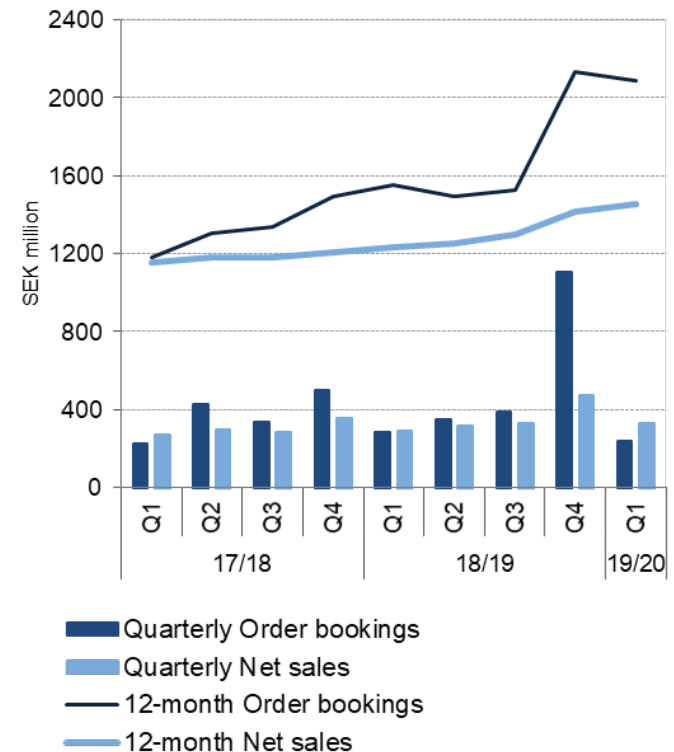
Adds USA to the market for Secure Communications.



Sectra now owns one of the world's most secure and best VPNs for mobile solutions – used by government authorities and enterprises around the world.

Order bookings for the Group

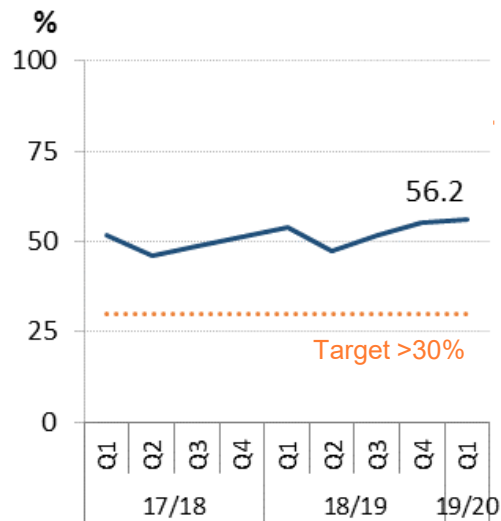
- Record-high 18/19 order booking is in delivery phase



Financial targets for the Group

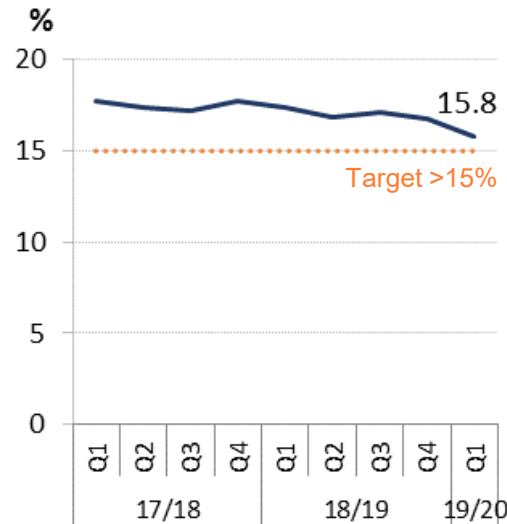
1. Stability

Equity/Assets ratio



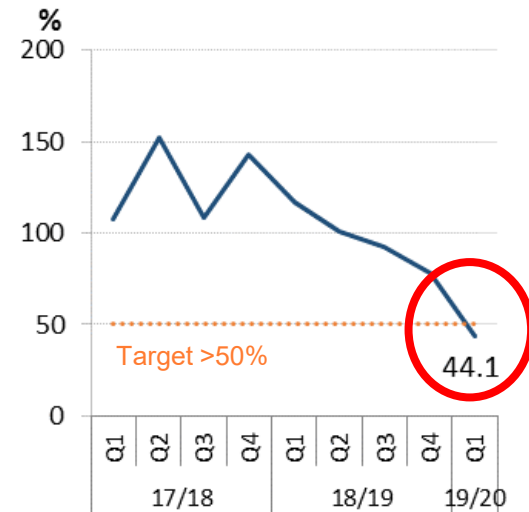
2. Profitability

Operating margin



3. Growth

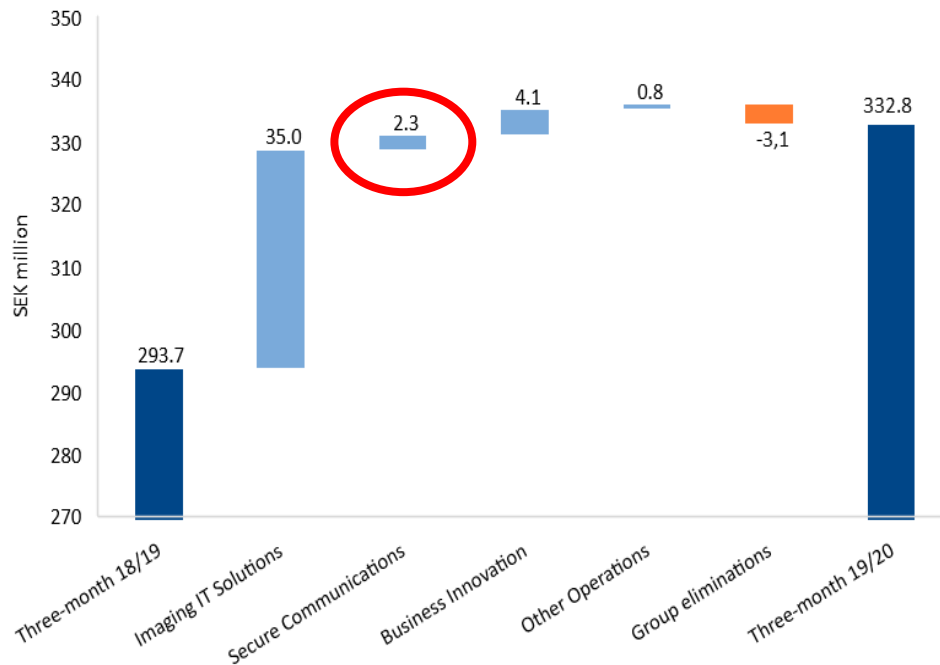
EBIT/share growth over a 5-year period



Priority

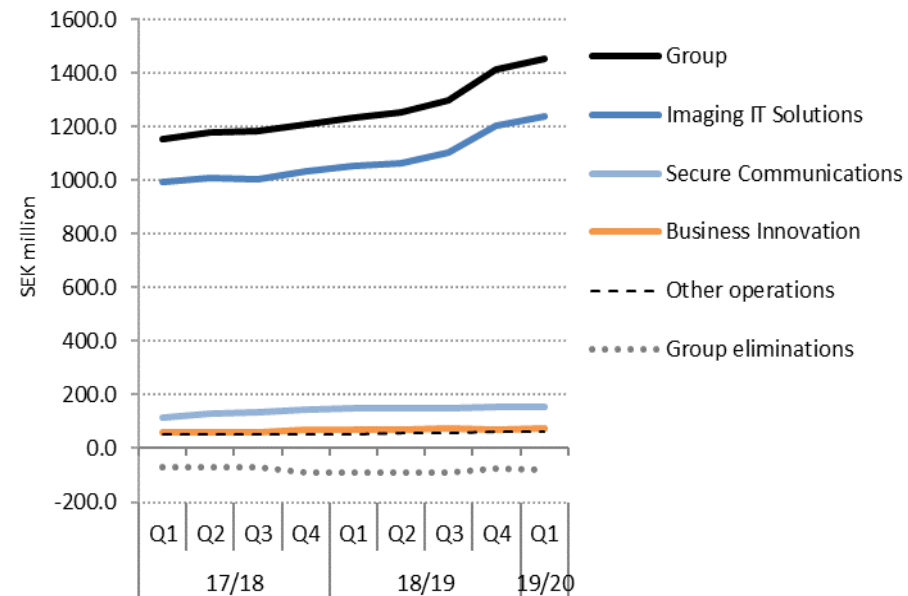
Sales trend by business segment

By business segment



Trend

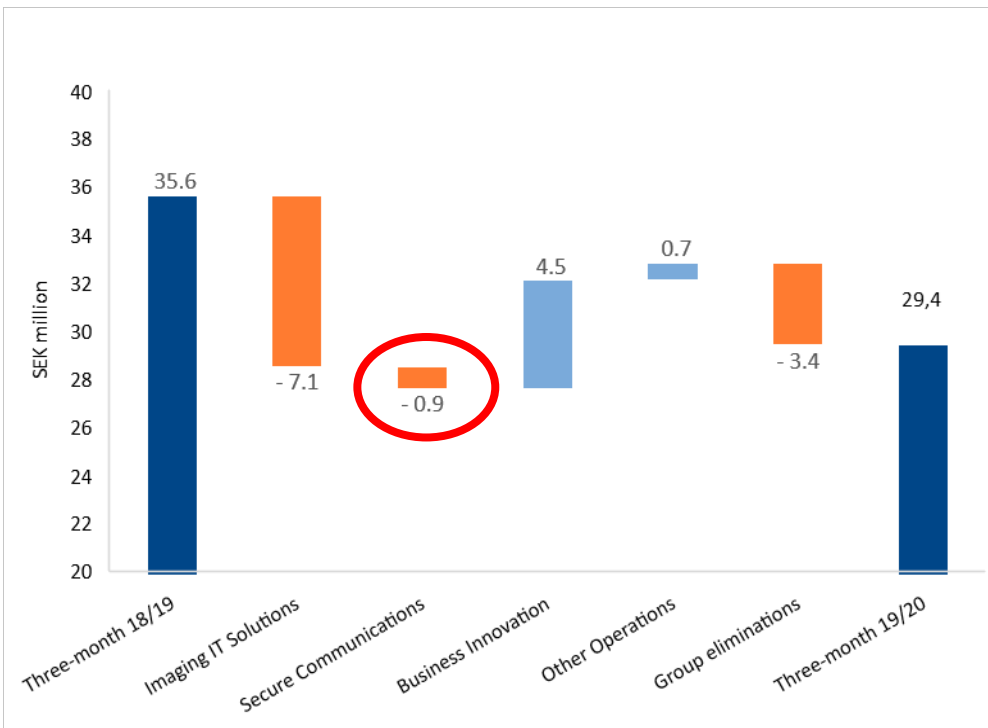
12 month rolling



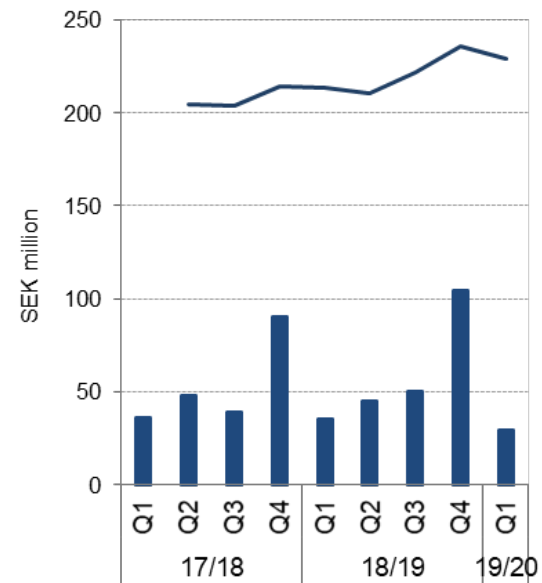
Changes compared with the corresponding quarter the preceding fiscal year.

Operating earnings trend

By segment



Trend for the Group 12 month rolling

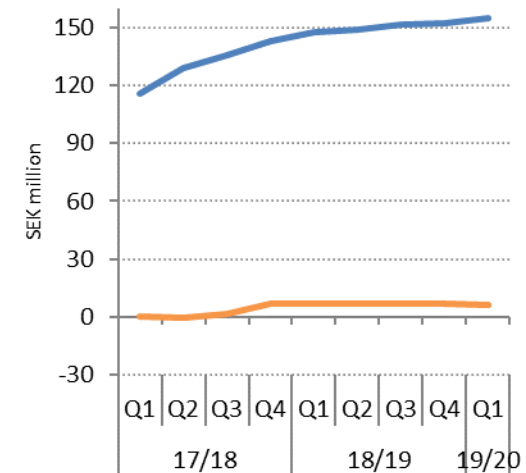


Changes compared with the corresponding quarter the preceding fiscal year.

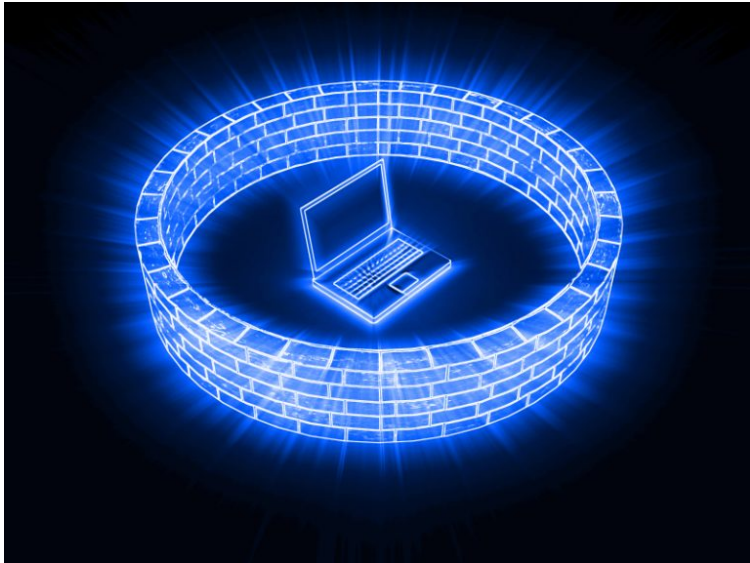
Financials

- Sectra Communications does not yet contribute to our financial goals
- But good opportunity for growth and margin improvement
- Investment phase in Critical Infrastructure and Authorities/Enterprise segments
- Growth initiatives:
 - Critical infrastructure product area
 - Mobile secure ecosystems
 - New geographic areas, active sales now also in the US and CI in Finland and Norway

Sales and operating profit
Secure Communications



Summary



- All critical functions in a modern society is controlled by IT
- Modern terrorists, cyber-mafia or aggressive nations will target this
- Society must protect itself.
Legislation increases
- The cybersecurity market is thus set up for large and very long-term growth
- Sectra is active in the following key areas
 - Critical Infrastructure
 - High speed network encryption
 - High quality, high security mobile workplaces.

SECTRA

Knowledge and passion

Enhancing business continuity and operational efficiency

Cybersecurity solutions for a new era



Simo Pykälistö

- » President Sectra Communications AB
- » Executive vice president, Sectra AB
- » Degree in Finance from Alliant Int. University, USA
- » At Sectra since 2003



Who we are.

Sectra Communications Group

Who we are – Sectra Communications Group

40 years in cybersecurity



Security for
banking sector



Crypto for
defense



Approved
crypto phone



Secure
smartphone



Critical
security
services



1978



1987



1998



2011

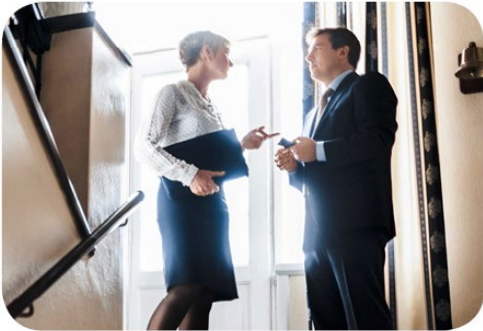


2016

What we do.

What we do

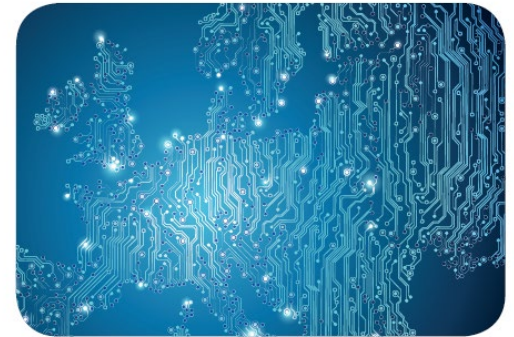
Contribute to a stable and secure society



Secure mobile solutions
for Civil Authorities and
Enterprise



IT/OT security
solutions for Critical
Infrastructure



Communication
systems for National
Security

What we do

Our offering

Civil Authorities



Critical Infrastructure



Advisory
Services



Monitoring
Services

National Security



What we do

A strong foothold in cybersecurity



Government organizations in more than 15 European countries



Defense organizations in Europe



Missions and battlegroups



EU and NATO



Actors within Critical Infrastructure

A map of Europe is shown in a light blue color. A horizontal band of a slightly darker blue color runs across the middle of the map, passing through the United Kingdom, Germany, Poland, and the Czech Republic. This band represents the member states of the European Union.

Delivering secure communications to more than
half of the EU member states.

What we do

Supporting a secure society



- Collaboration
- Military defense
 - Civil defense
 - Critical Infrastructure
 - Industry



Business continuity



Operational efficiency

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Where we are going.

Where we are going

Trends and drivers



» Digitization, mobility and automatization



» New geopolitical threats and need for cooperation



» Post-quantum—a paradigm shift in the crypto industry?



» Increased degree of interconnectivity and complexity in critical systems

Where we are going

Build on strengths, mitigate weaknesses



» Focus on core competences



» Third-party integration for complete offering



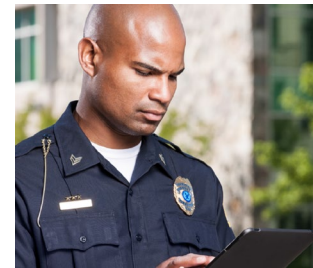
» Organize for customer influence and customer segment orientation



» Grow segments where authority influence is lower to increase our independence

Customer segment focus

- » National Security
 - » legal requirements
- » Civil Authorities and Enterprise (incl. healthcare)
 - » security awareness, efficiency
- » Critical infrastructure
 - » operational continuity



Long term stable growth and profit

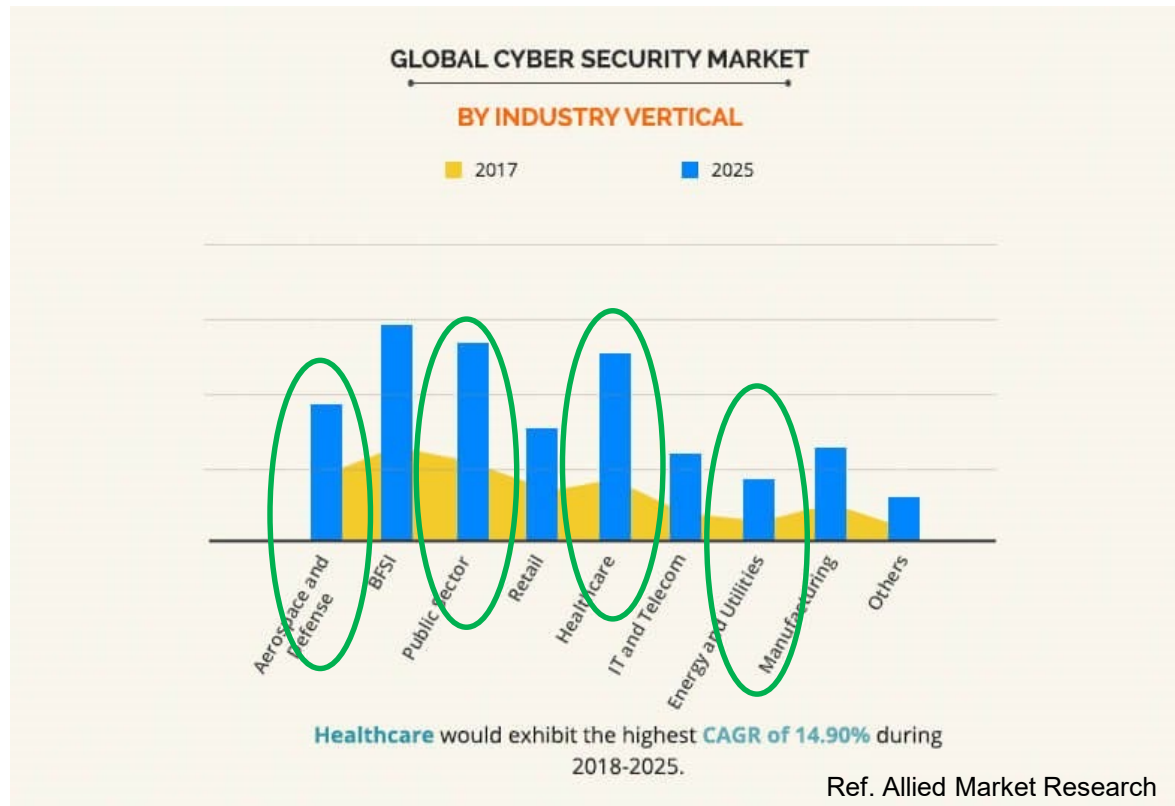
- » Geographic focus
- » Offering by segment
- » Partnerships
- » Columbitech acquisition
 - » US office
 - » Medical segment
 - » VPN offering
- » Services and recurring revenue



Security market.

Growing underlying market

- » The cybersecurity market size is projected to grow from \$104.60 billion in 2017 and to \$258.99 billion by 2025, growing at a CAGR of 11.9%.



How we do it.

In reality and in fiction

CHAPTER 5

“The shrill ring of his phone drew the provost’s gaze from the calming mist of the Adriatic, and he quickly stepped back into his stateroom office.

It’s about time, he thought, eager for news.

The computer screen on his desk had flickered to life, informing him that the incoming call was from a **Swedish Sectra Tiger XS** personal voice-encrypting phone, which had been redirected through four untraceable routers before being connected to his ship.”



Als de hoofden van de AIVD, MIVD en NCTV in 2015 in een geheime bijeenkomst op het ministerie van Algemene Zaken alarm slaan en 340 miljoen euro vragen voor digitale veiligheid, reageren premier Rutte en zijn ministers afwijzend. Er komt een werkgroep, een strategie en jaren later een ‘agenda’. Het is dit soort onbekommerdheid die bij bronnen tot de verzuchting leidt dat er misschien sprake is van een generatiekloof: politici die over digitale veiligheid beslissen, zijn opgegroeid zonder computer en smartphone. Veertigers en vijftigers die weinig affiniteit hebben met digitale middelen. Ze doorzien de kwetsbaarheid niet. Sommige ministers weigeren bijvoorbeeld met de speciaal beveiligde Tigertelefoon te bellen. Oud-minister Plasterk zet, als hij politiek verantwoordelijk is voor de AIVD, de omstreden chatdienst Telegram op zijn diensttelefoon – waarna hij vanwege de veiligheid een nieuwe telefoon moet.

How we do it

National Security



Tablet and smartphone security

Sectra Tiger Ecosystem



Collaboration



Coordination across borders



Crisis preparedness



Updates to and from the field



Avoid crypto islands and lock-in scenarios

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Knowledge and passion

How we do it

Civil Authorities



Crypto for Tetra users

Tablet and smartphone security



Robustness



Operational efficiency



Confidentiality



Future-proofness



Information anytime,
anywhere

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Knowledge and passion

How we do it

Energy and Critical Industry



Security advisory services

Critical network monitoring

Tablet and smartphone security

Crypto for Tetra users



Business
development



Business continuity



NIS, GDPR, security
law compliance



Incident
management

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Knowledge and passion

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Knowledge and passion

Security in a Post-Quantum future



Dr. Jonathan Jogenfors

- » Research Manager,
Sectra Communications
- » Postdoctoral Researcher,
Linköping University
- » Quantum Cryptography,
Information Security,
Blockchain Technology



Cryptography is paramount for security



- » Confidentiality
- » Integrity
- » Availability

Keeping data safe over time

- » How long do you need your information to remain secure?
- » Real-time security? 0 years
- » Short-term security? 10 years
- » Medium-term security? 30 years
- » Long-term security? 70 years

Cryptographic migration takes time

- » How long time does it take to deploy a quantum-safe solution?
- » 0 years?
- » 3 years?
- » 10 years?

How far away is a Quantum Computer?

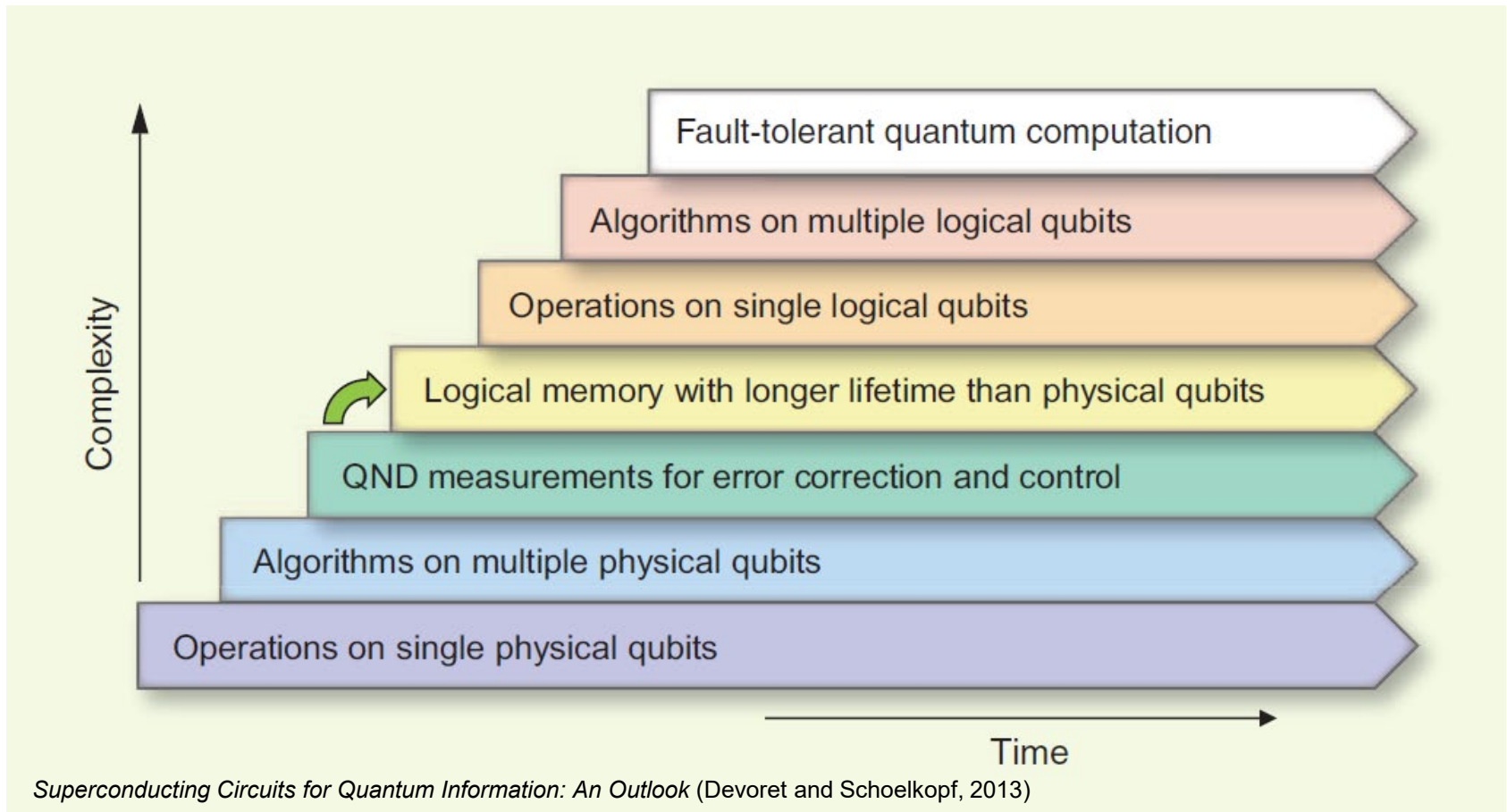
The pressing question is how

security horizon + deployment time

compares to

time until a quantum computer arrives

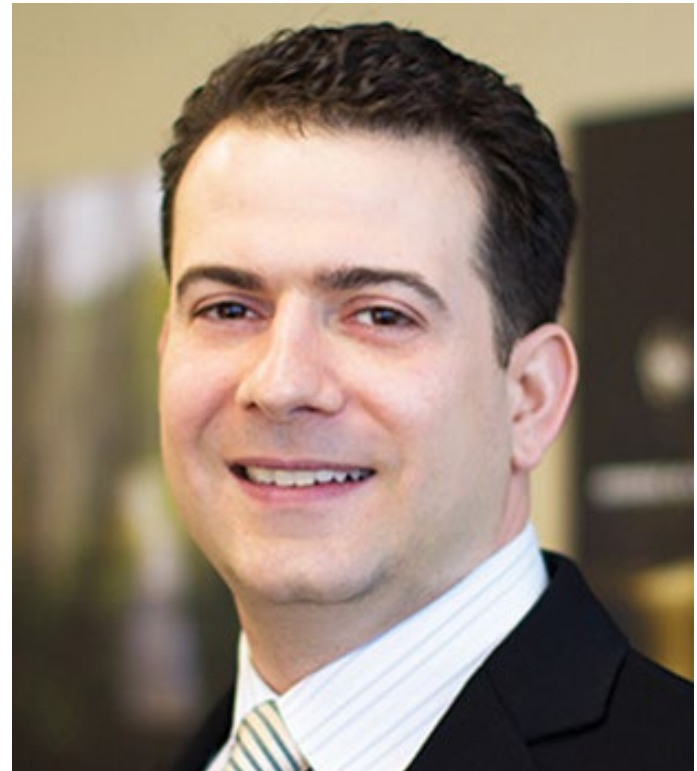
Seven steps to a Quantum Computer



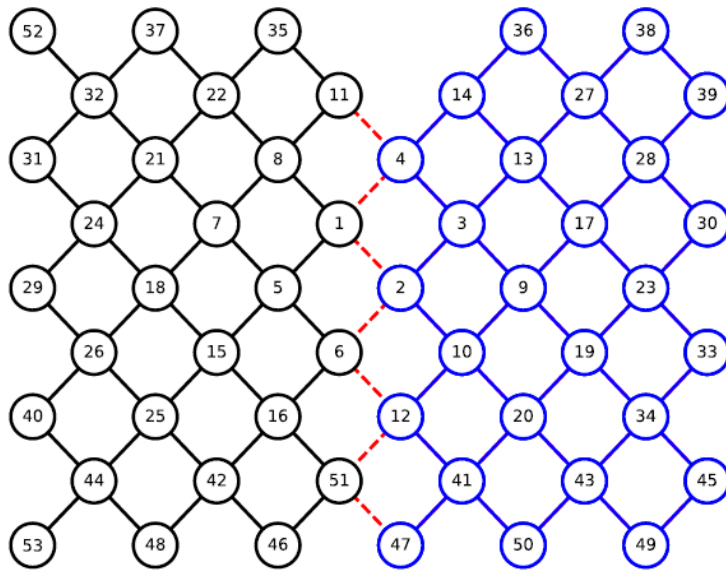
Estimates for the Post-Quantum Era

“1/6 chance within a decade,
1/2 chance within 15 years”

2017 prediction by Michele Mosca,
Institute for Quantum Computing at the
University of Waterloo



Google's Quantum Supremacy Paper



FINANCIAL TIMES

IS COMPANIES TECH MARKETS GRAPHICS OPINION WORK & CAREERS LIFE & ARTS HOW TO SPEND IT

m technologies

is rubbish Google's claim of
itum supremacy



Quantum computing builds on
Turing's legacy



British quantum computing
experts leave for Silicon Valley

Quantum technologies [+ Add to myFT](#)

Google claims to have reached quantum supremacy

Researchers say their quantum computer has calculated an impossible problem for ordinary machines

Madhumita Murgia and **Richard Waters** SEPTEMBER 20 2019 158

Google claims to have built the first [quantum computer](#) that can carry out calculations beyond the ability of today's most powerful supercomputers, a landmark moment that has been hotly anticipated by researchers.

A paper by Google's researchers seen by the FT, that was briefly posted earlier this week on a Nasa website before being removed, claimed that their processor was able to perform a calculation in three minutes and 20 seconds that would take today's most advanced classical computer, known as Summit,

Quantum attacks can happen today

1. Record
2. Wait
3. Break



Back to the dark age of crypto

- » Locked briefcases
- » Extremely expensive
- » “Information protection for rich people”
- » Easy to screw up. Easy to backdoor. Hard to audit.



RSA is built on mathematical foundations

A Trapdoor One-Way Function

14590676800758332323018693934907063529240
18723753571643995818710198734387990053589
38369571402670149802121818086292467422828
15702292207674690654340122488967247240792
69699871005812901031993178587536637108623
57656510507883714297115637342788911463535
10271203276516651841172685983798867211183
7205085526346618740053

=

12131072439211271897323671531612440428472
42763370141092563454931230196437304208561
93241973653224168665410170573613652141717
11713797974299334871062829803541

x

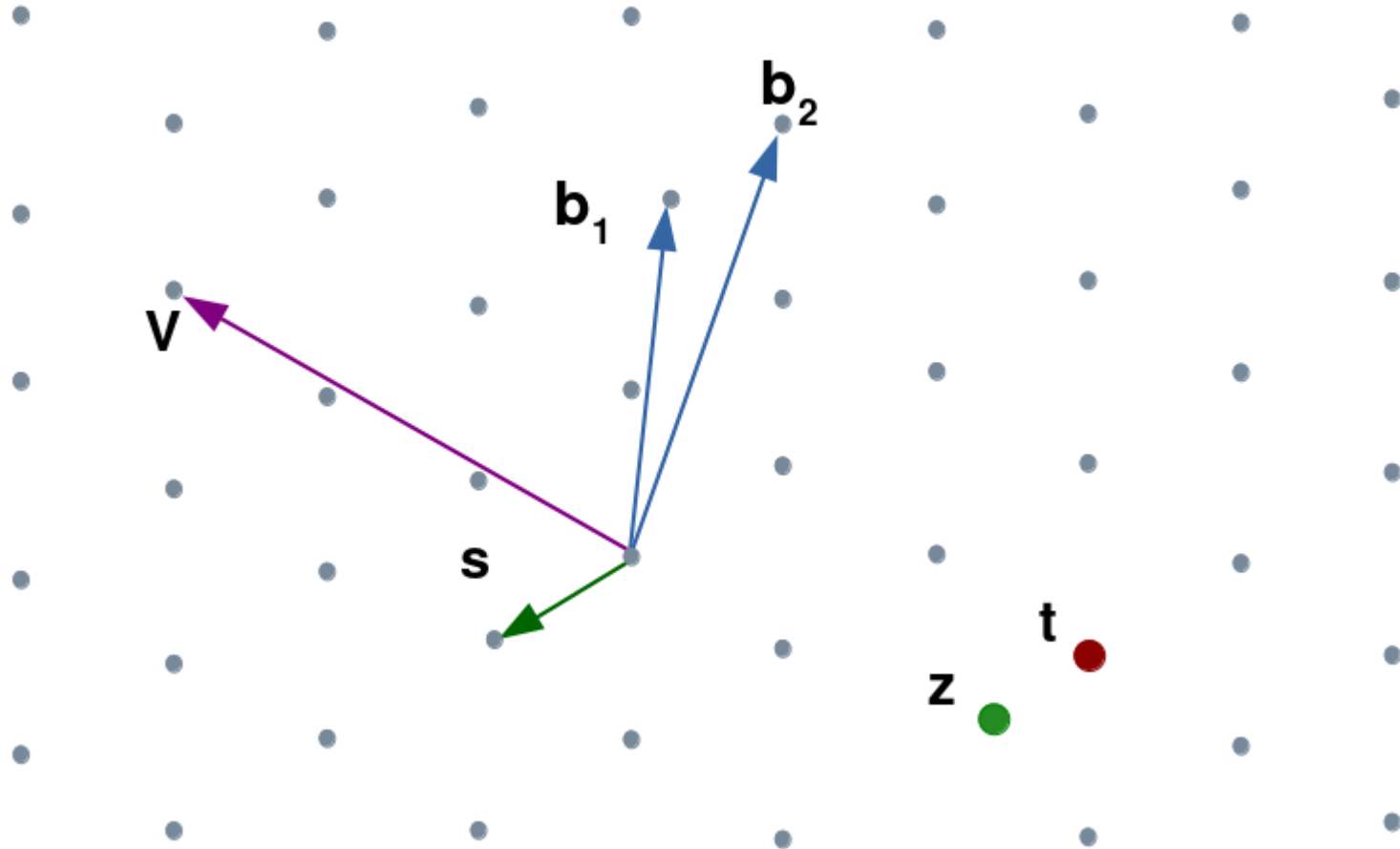
12027524255478748885956220793734512128733
38780368207543365389998395517985098879789
98691469008091316111533468170508320960221
60146366346391812470987105415233

prime number



prime number

We need new trapdoor functions!



NIST is standardizing PQC

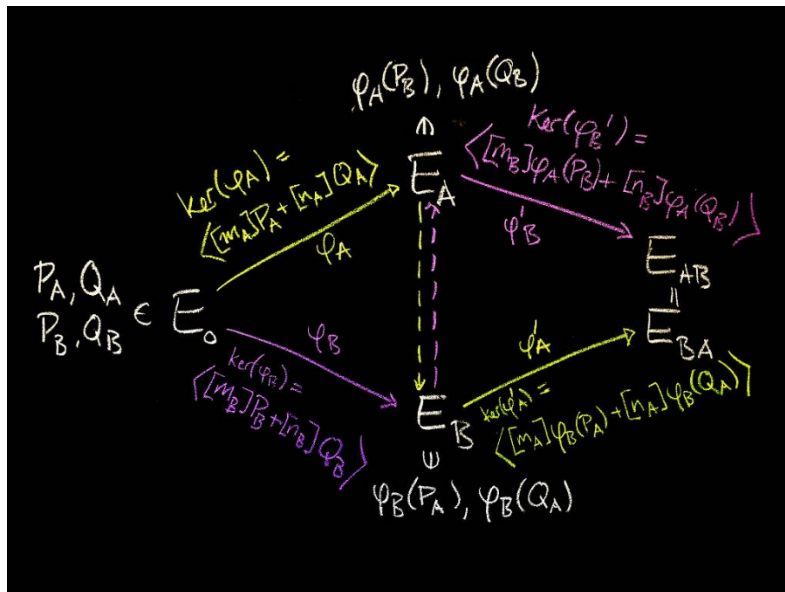


NEWS

NIST Reveals 26 Algorithms Advancing to the Post- Quantum Crypto ‘Semifinals’

January 30, 2019

Fundamental and Applied Research



“Post-quantum cryptography also requires a **wide range** of research from **fundamental studies** of their resistance to quantum attacks, to studies of their efficiencies under various **resource constraints**, to studies of their **side-channel resistance**.”

(Michele Mosca, emphasis added)

Post-Quantum Google Chrome Test



“We did not find any unexpected impediment to deploying something like NewHope. There were no reported problems caused by enabling it.”

(Nov 2016)

Hybrid systems for near-term security

- » Pre-quantum: broken by quantum computer
- » Post-quantum: can have unknown flaws
- » Hybrid system:
Combine Pre-quantum and post-quantum security



Sectra's role in Post-Quantum Crypto

- » PQC is a high priority for Sectra
 - » We're first movers in a fast-moving field
 - » Customers will need quantum-safe technology
 - » As the technology matures, we strive to be ahead
-
- » Strong academic focus

Summary

- » We need post-quantum cryptography to stay secure
- » Challenges:
 - » Performance
 - » Power Consumption
 - » Uncharted waters
- » PQC will be disruptive – we have to act now to be prepared

SECTRA

Knowledge and passion

Trusted by customers and security authorities in Europe

National Security



Fredrik Sundström

- » VP Customer segment
National Security Sectra
Communications
- » Master of Science LiTH 2001
- » Working at Sectra since 2001



Common factors for all customers

- » Bound by legal requirements
 - » Exchange of information
 - » Communication
- » Approved products



...and we know what it takes

- » To comply with regulatory requirements
- » To do impartial assessments
- » Build trust outside the governmental world



Who's the opponents?



What does the customer need?



Market

- » Sweden
- » Netherlands
- » Norway
- » ~50 % of European nations



Who's the customer?

Defense organizations



FÖRSVARMAKTEN



Civil authorities



REGERINGSKANSLIET

Utrikesdepartementet



Myndigheten för
samhällsskydd
och beredskap



Ministerie van Defensie

Organizations & operations



What do we do?

- » Tiger Eco System
- » Network Encryption
- » Support and service



Growth potential

Pressmeddelande från [Försvarsdepartementet](#), [Regeringen](#)

Förstärkning av det militära försvaret i budgeten

Publicerad 18 september 2019



- » Rebuilding “Totalförsvaret” in Sweden
- » Same trend in other European countries
- » Expand on existing framework agreements
- » Take more products to international market

Reference National Security

Protecting Dutch state secrets



Framework contract
for secure comms



Mobile and fixed
telephony, smartphone
and fax for SECRET
and RESTRICTED



Interoperability
between solutions
and ministries



> 200 subscribers

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Knowledge and passion

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Knowledge and passion

Secure Mobile Workplace and smartphones



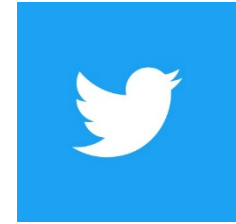
Robert Lidquist

- » EVP, BU Civil Authorities
Sectra Communications
- » Electrical Eng. LiTH 1991
- » At Sectra since 2003



Mobile risk factors

Exposure to Internet



Access to sensitive services



Personal integrity

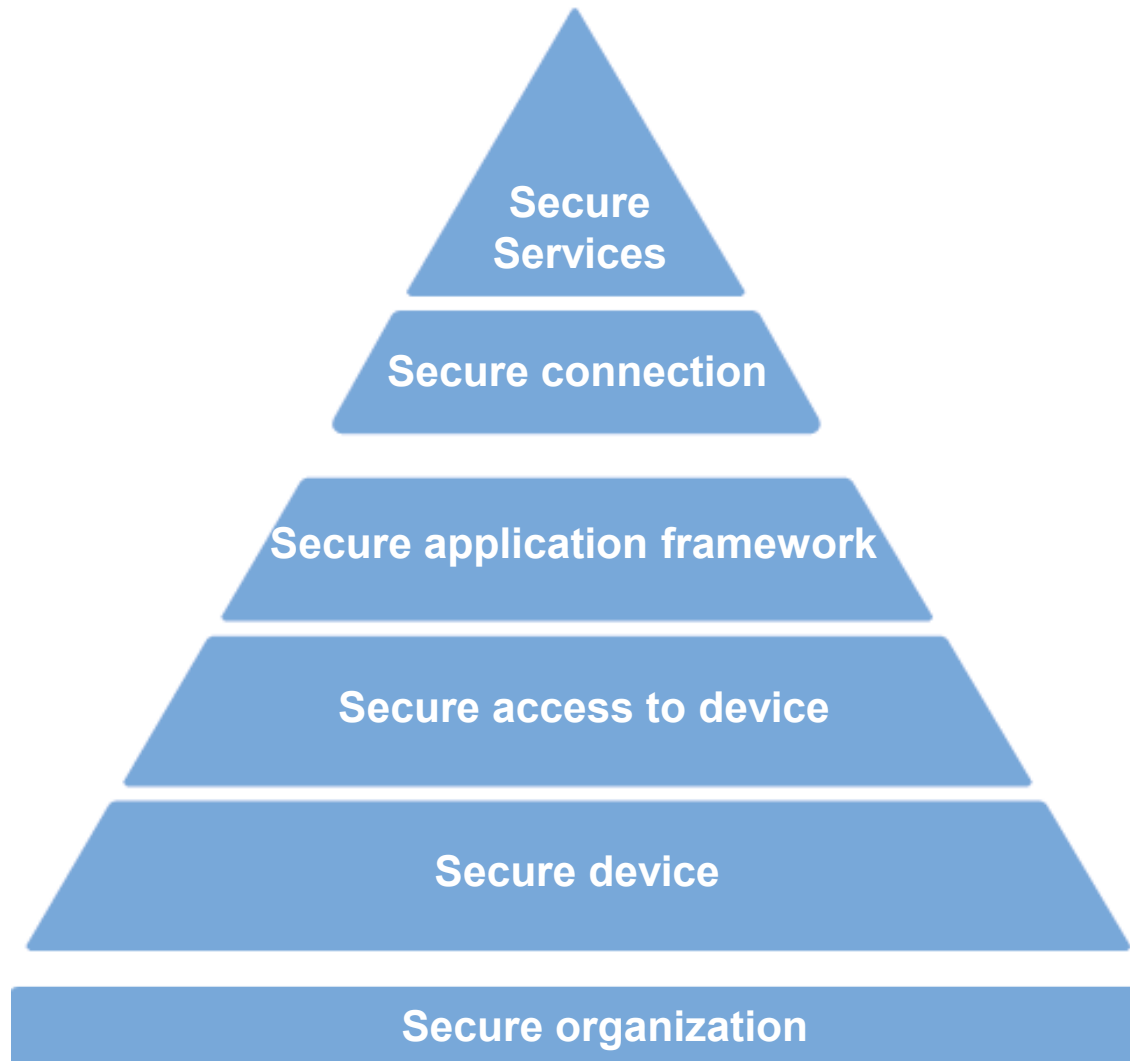


“Oups, I forgot my device in the taxi”

“Oups, the link looked ok”

“Is our data valuable??”

How to mitigate the risks?



Sectra Mobile Workplace



Secure device and secure access to the device

Smartphone Integrity



Ensures device integrity & prevents user mistakes



Protects sensitive data on the device

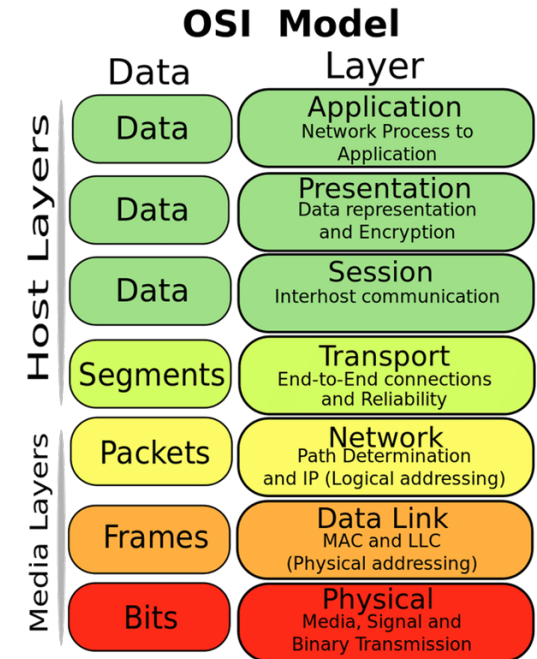


Secure Connection

Sectra Mobile VPN



- » Patented solution
- » Always on
- » Always connected
- » Future proof
 - » Multiple secure connections on one device



Sectra Mobile Workplace



- » Always access to sensitive data
- » Adaptations made easy
- » No data on the device
- » Replaces the laptop

Reference Civil Authorities

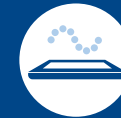
US police forces



Strategic partnership
with Sprint



VPN for secure
access to internal
networks



Continuous
availability is key

Reference Civil Authorities

Secure Voice & Messaging



Between
organizations



Quick decisions



Easy to buy



Foreign operation



Approved to EU &
NATO
RESTRICTED

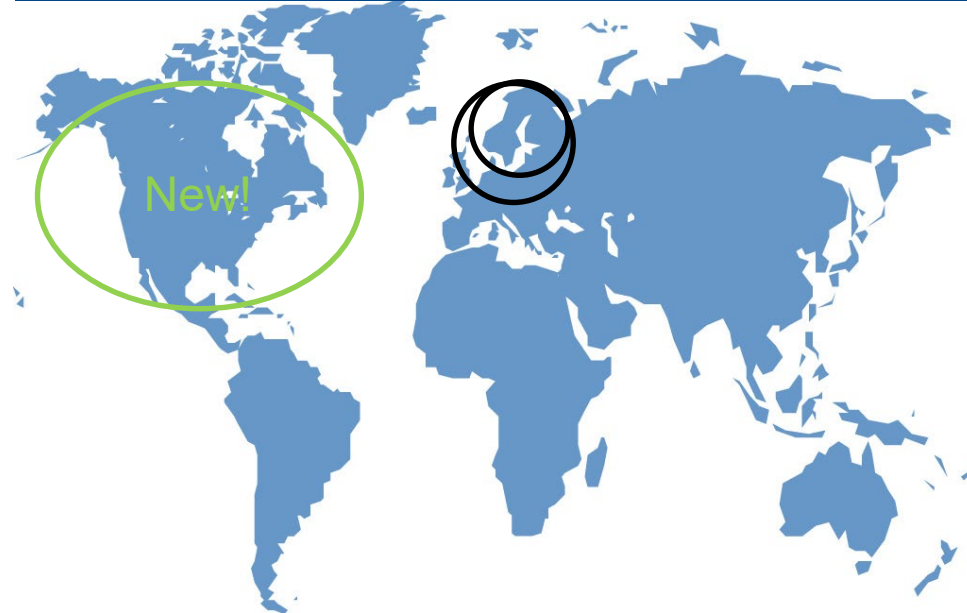
SECTRA

Knowledge and passion

Status

Products per market

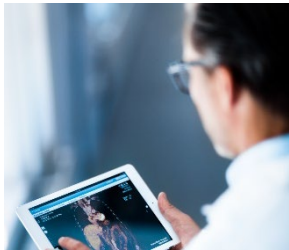
- » Sectra Tiger/R
 - » Europe
- » Sectra Mobile Workplace
 - » Sweden
 - » The Netherlands
- » Sectra Mobile VPN
 - » North America



Driving factors



» Cost of cybersecurity incidents



» Digitalization of sensitive services



» New security laws and regulations

SECTRA

Knowledge and passion

Critical Infrastructure



Lasse Larsson

- » VP customer segment
Critical Infrastructure at
Sectra Communications



Critical Infrastructure

Energy



- » Distribution
- » Generation

Water



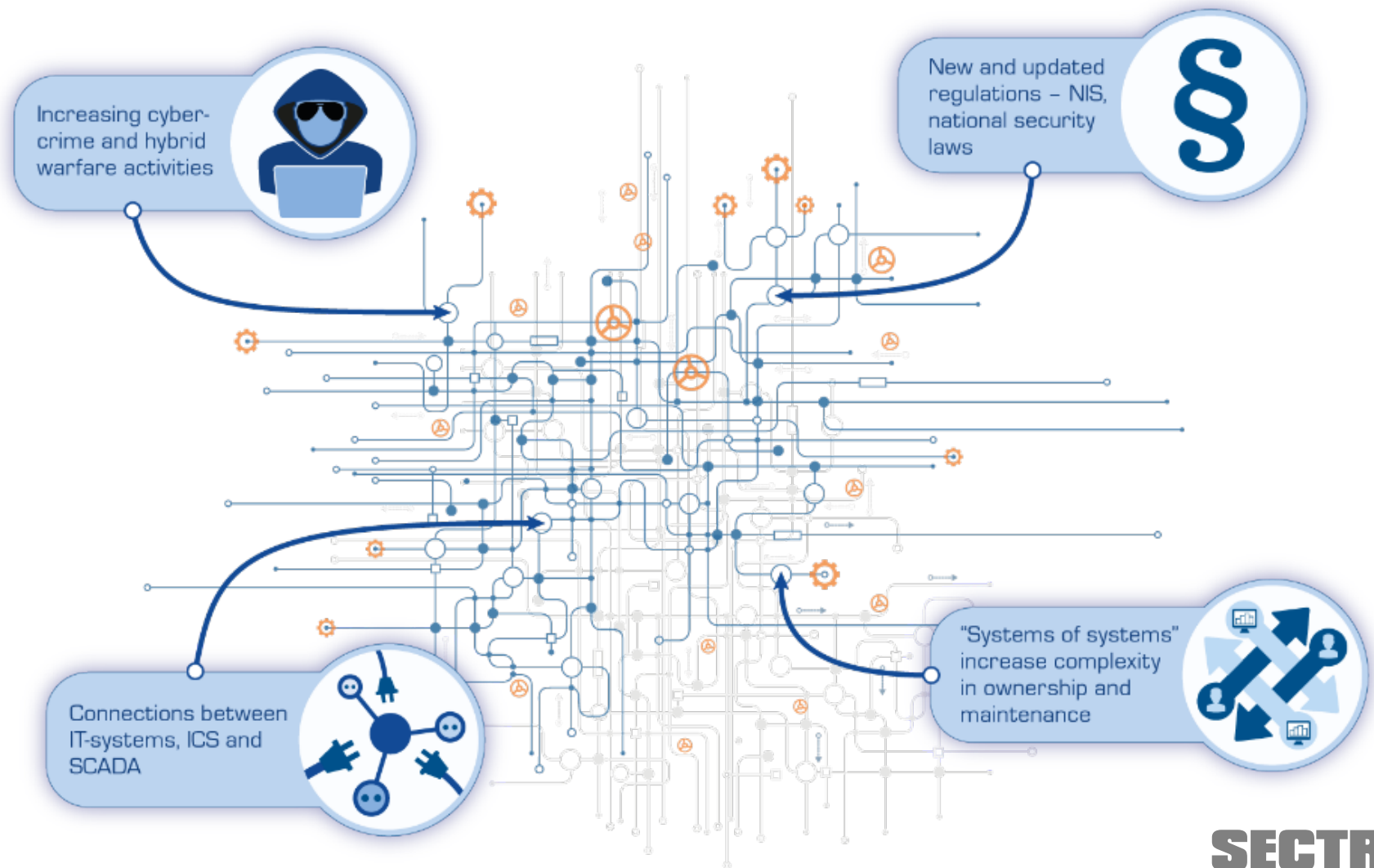
- » Drinking Water
- » Water Management

Process Industry

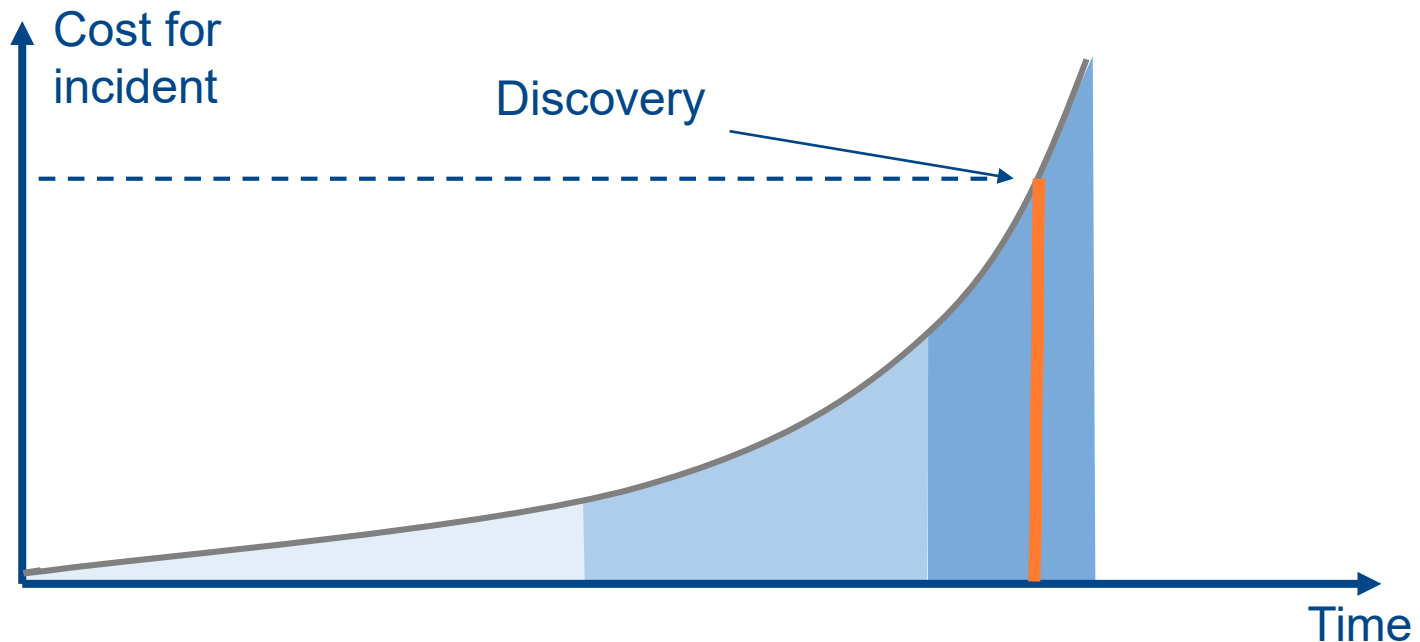


- » Petrochemical
- » “Energy Intensive”

Digital transformation & our market drivers

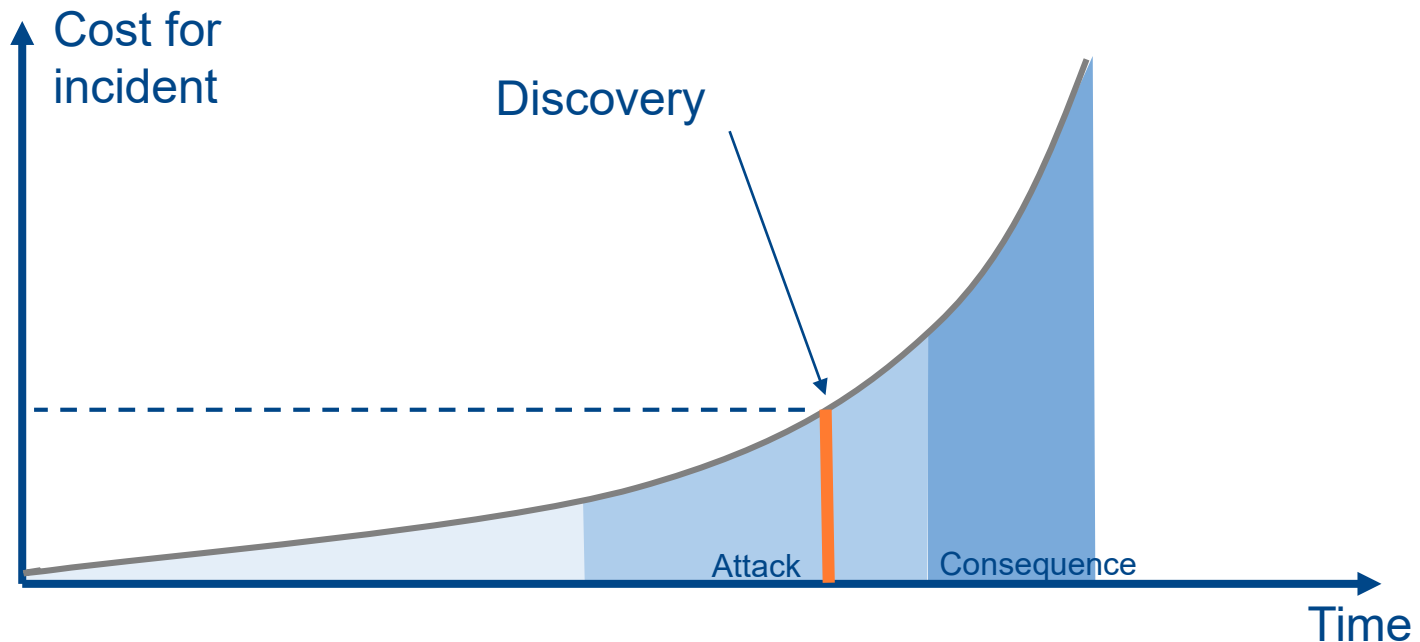


Reactive – act on consequences



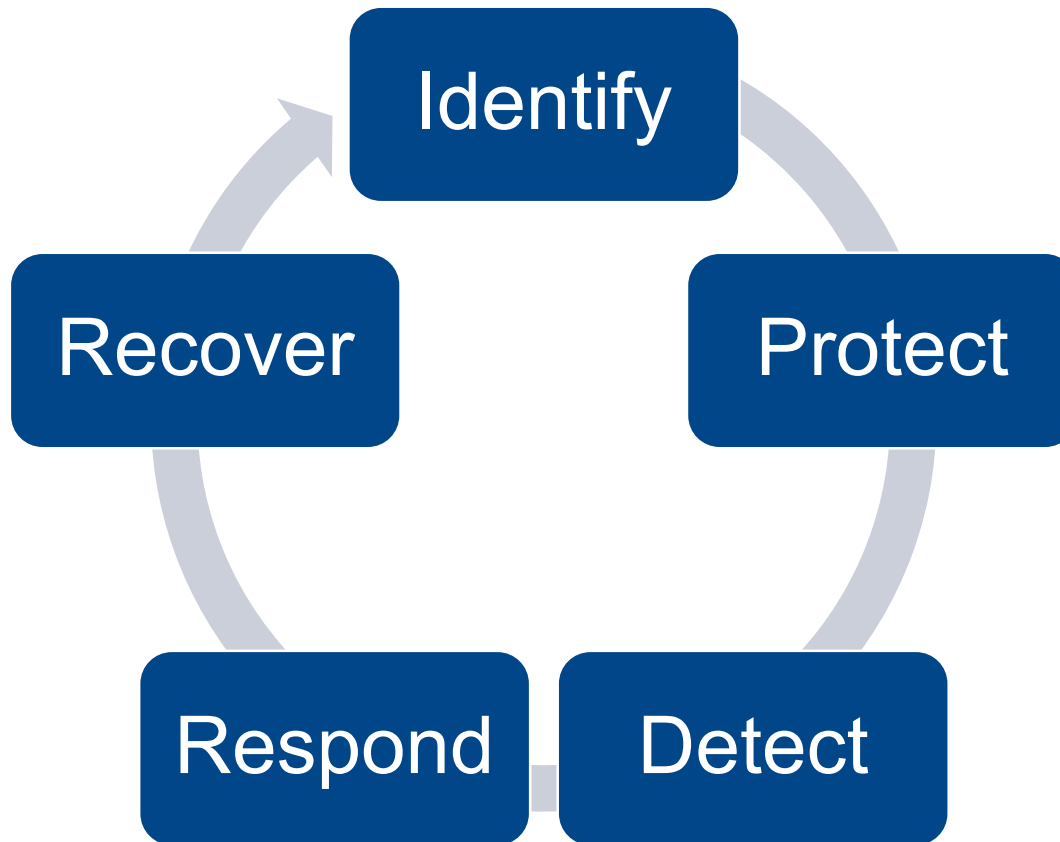
The cyberattack on Norsk Hydro did cost 300 MNOK the first week

Proactive – act on attack

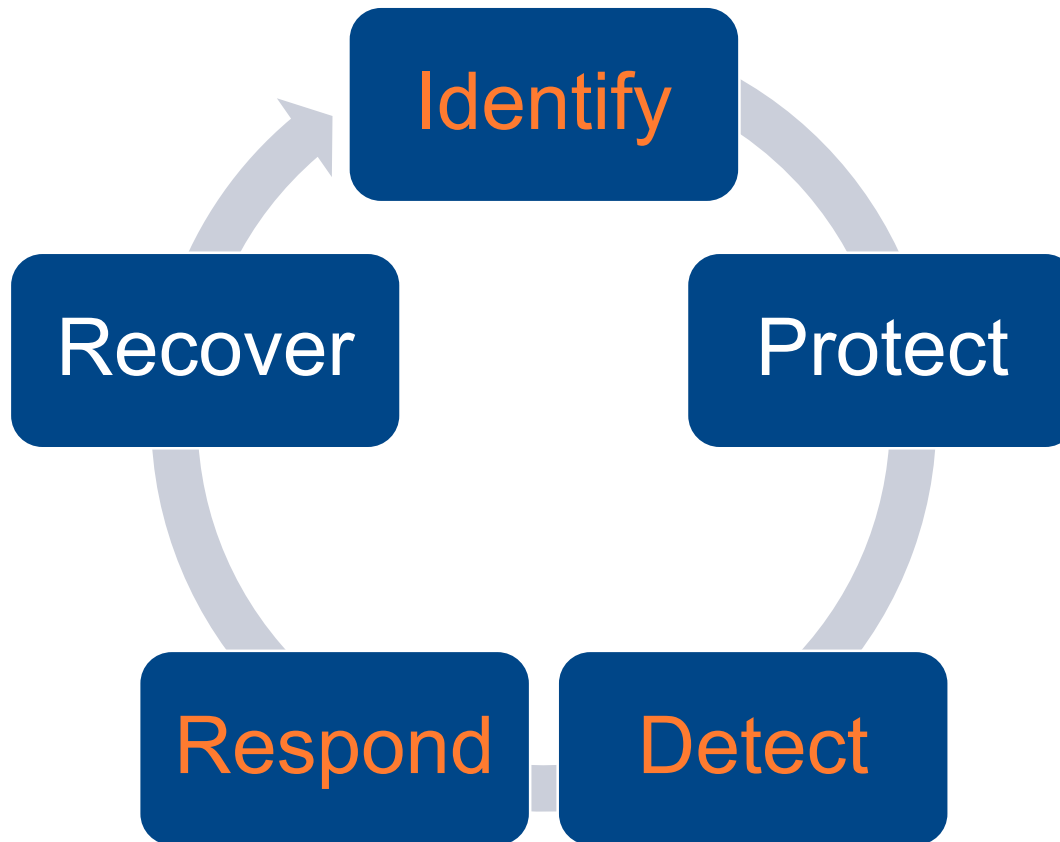


The cyberattack on Ukraine powergrid started in June and the power outage was in December

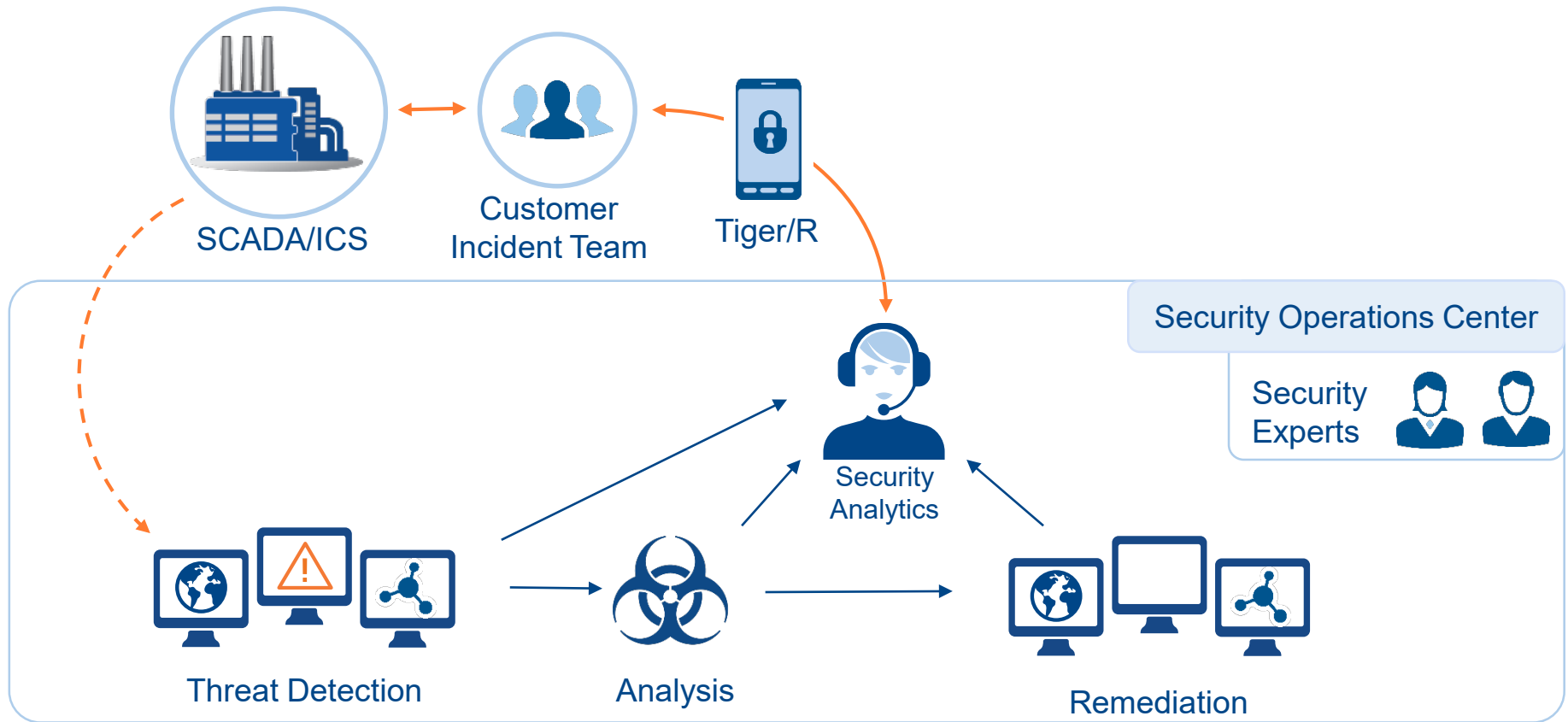
Cybersecurity - framework



Cybersecurity - framework



Detect and Respond



SECTRA

Knowledge and passion

Sectra CMD Cybersecurity

Skate to where to puck is going to be



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Knowledge and passion

Our position



A market that is:

- Global and large
- Forced to grow by external forces
- Not price sensitive
- Large barriers of entry due to required trust
- In rapid and for ever change

*"Where there is change,
- There is margin!"*



Growth and margin
need to increase

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Knowledge and passion

A conceptual image showing multiple hands of different skin tones interlocking in a circular pattern, symbolizing unity and teamwork. The image is bathed in a blue and red light gradient.

Going forward

When Wayne Gretzky was asked
how he could be so good:



*"I do not skate to where the puck is
... I skate to where the puck is going to be!"*

A blue-tinted X-ray image of a person's legs wearing high-heeled shoes. The image shows the skeletal structure, including the tibia, fibula, and the bones of the feet and toes. The high heels are visible, and the overall image has a medical or scientific feel.

New Threats

"5G ställer helt nya krav på säkerheten"

2019-09-13 12:38

2 kommentarer



Det här är en debattartikel. Åsikterna som framförs är skribentens egna.

DEBATT. Snart kommer autonoma bilar och kirurgiska robotar vara uppkopplade. Då handlar ett dataintrång inte längre om personlig integritet eller om pengar. Ett intrång kan riskera liv och hälsa, skriver Jan Lundberg på Palo Alto Networks.

Säkerheten för 5G-nätverk har fått allt mer uppmärksamhet senaste tiden, men mer fokus kunde gärna läggas på de risker som finns med själva tekniken. Som det ser ut i dag kommer företag annars inte vara tillräckligt förberedda. Det sätt

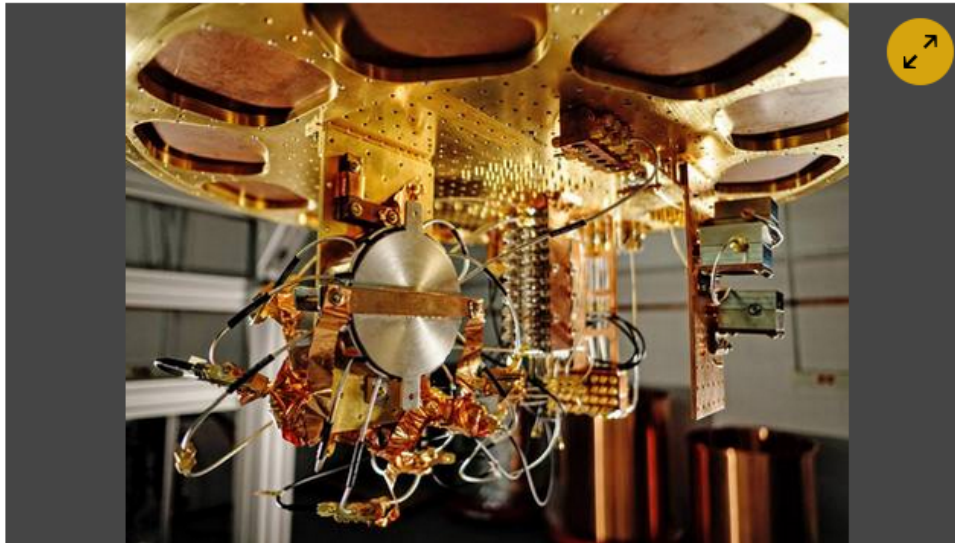


Google kan ha bevisat kvantdatorns överlägsenhet

2019-09-23 15:38

Av: [Simon Campanello](#)

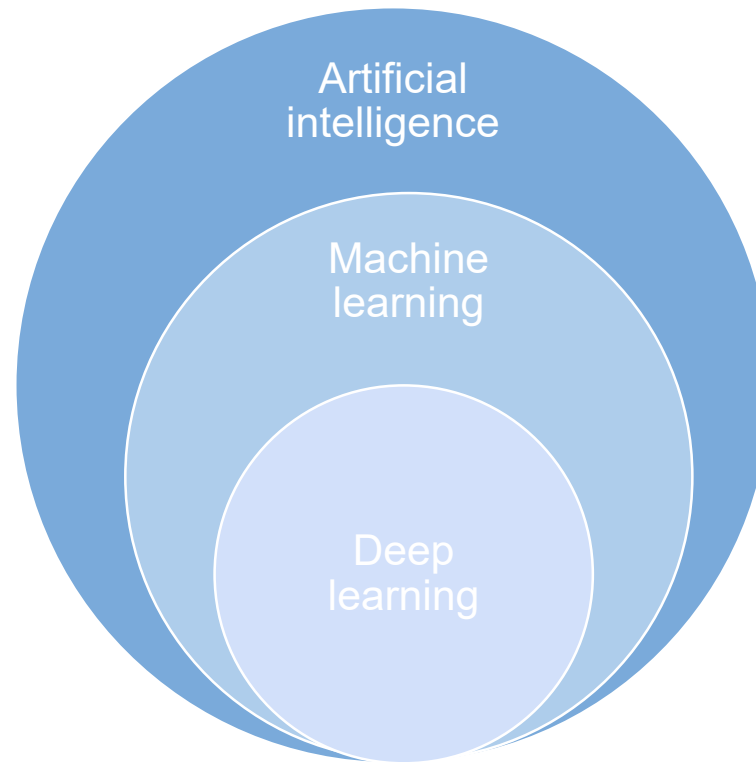
9 kommentarer



I en läckt vetenskaplig artikel visar Google-forskare för första gången experiment där en kvantdator faktiskt utklassat en traditionell dator. "Ett stort genombrott", säger Chalmersforskaren Jonas Bylander.

Kvantdatorer kan teoretiskt sett utklassa dagens datorer i många arbetsuppgifter, men hittills har ingen kunnat bevisa det i verkligheten. Fast nu verkar några Google-forskare till sist ha lyckats.

Artificial Intelligence



Will influence also Cybersecurity!

The first law of technology



The first law of technology says that we, invariably, overestimate the short-term impact of a truly transformative technology, while we also invariably underestimate the long term effects.

Keywords going forward

A stylized, glowing blue X-ray image of a person's legs and feet, showing the skeletal structure. The image is positioned on the left side of the slide, with the legs crossed at the ankles. The background is a dark blue gradient.

Customer satisfaction



Top level security

Assured level secrets
in hardware



Super simple to use



Mobility

As secure on the
road as back home


A blue-tinted X-ray image of a person's lower legs and feet, showing the skeletal structure. The image is positioned on the left side of the slide, with the legs crossed at the ankles. The background is a dark blue gradient.

Critical Infrastructure

Protect our society

A stylized, glowing blue X-ray image of a person's legs wearing high-heeled shoes. The image is set against a dark blue background with a subtle orange glow at the bottom. The bones of the legs, feet, and the heels of the shoes are visible in a translucent blue color.

Internationalization and growth

A circular arrangement of hands holding each other, with a blue and red color gradient. The hands are of various skin tones and are positioned in a circle, with some hands holding pens. The background is dark blue.

Sets us on a
good path forward

Thank You



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Knowledge and passion