Security considerations in tech startups

Gaute Wangen, Diri AS

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https://www.diri.ai

Digitized
intelligent
risk
identification

Cyber!

1. About Diri
2. Information security fundamentals
3. Security considerations in innovation projects
4. Security as a cloud-based company
5. Security as a cloud provider

About Diri

Based on research from NTNU – Gaute Wangen

Established 2020

Gaute Wangen – CTO / Inventor and Co-founder

Vebjørn Slyngstadli – CEO / Co-founder

NTNU Technology Transfer as

KONG ARTHUR

Diri

Diri AS

Diri is a startup company from the Cyber Security community at NTNU in Gjøvik, Noway and was developed in collaboration with NTNU TTO and Kong Arthur AS. Our goal is to help our customers create a cyber-risk aware company culture and help them work proactively with cyber security.

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Creates awareness of cyber-risk in the organization

Diri can be used by anybody at any level. Employees can assess cyber-risk where they operate, and reports will automatically be shipped upwards in the hierarchy.

The Company

Our first customers are up and running. From the smallest private company with 20 employees to the largest university in Norway.
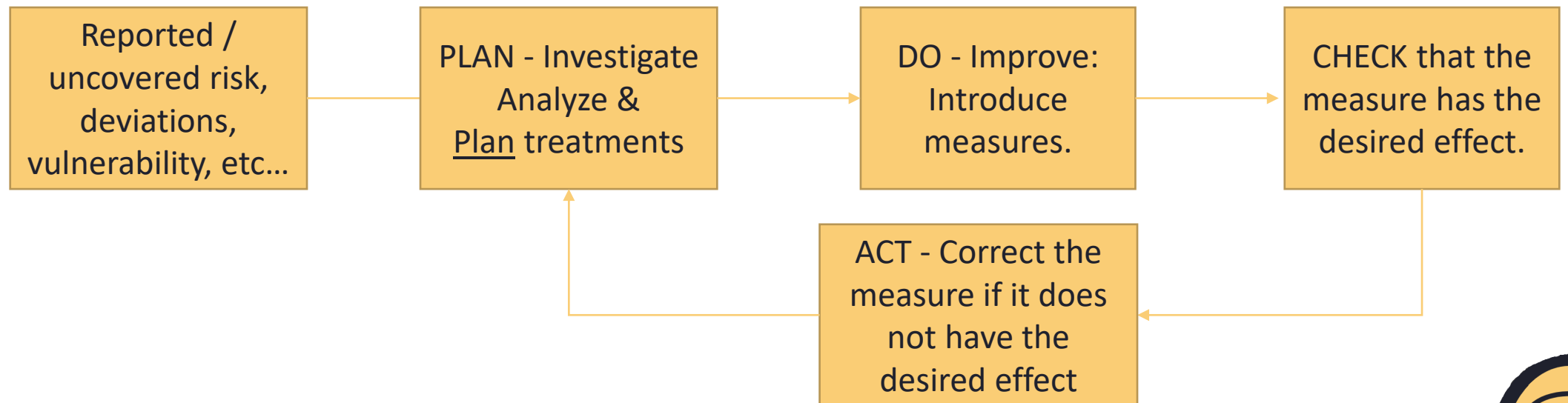
Marketing

Funding, marketing and growth our biggest challenge at the moment.

A partner of

TOTAL INNOVATION

Some fundamentals: Digital and information security

- Security risk management is a type of quality improvement *for the management of tangible & intangible assets*

- Secure reputation, trust, knowledge, rights, processes and culture

- Increase the quality of services, products, work processes, etc...

Reported / uncovered risk, deviations, vulnerability, etc... → PLAN - Investigate Analyze & <u>Plan</u> treatments → DO - Improve: Introduce measures. → CHECK that the measure has the desired effect.

ACT - Correct the measure if it does not have the desired effect

Securing information

Confidentiality – the need for secrecy

Integrity – reliability and trustworthiness

Availability – available when we need it

Examples of information security risks

Confidentiality: Data leaks

Integrity: incorrect invoicing

Availability: Service/Data loss

BBC NEWS

Twitch confirms massive data breach

By Joe Tidy & David Molloy
BBC News
5 days ago

Game-streaming platform Twitch has been the victim of a leak, reportedly divulging confidential company information and streamers' earnings.

DAGENS Medisin

UNN undersøker feilfakturering av pasienter

Det kan være ulik praksis internt i sykehuset fra klinikk til klinikk som har ført til at pasienter skal ha betalt for mye ved Universitetssykehuset Nord-Norge (UNN).

Anne Grete Storvik
ags@dagensmedisin.no
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Dette sier UNN-direktør Anita Elisabeth Schumacher til Narvik-avisen **Fremover**.

Feil fakturering har resultert i at pasienter ved (UNN) har måttet betale for bandasjer eller tabletter som de har fått med seg etter besøk i noen av poliklinikkene, skriver Fremover.

Kommunedirektør Ole Magnus Stensrud fortalte om utfordringene som Østre Toten kommune har hatt etter datainnbruddet tidligere i år.
Foto: Jon Olav Andersen, Totens Blad

Østre Toten kommune:
– Dataangrepet har kostet oss mer enn 32 millioner

– Heldigvis finnes det ordninger med krisehjelp fra staten. Jeg har vært i møte med kommunalministeren, og vi håper også å få litt hjelp derfra. Det sa kommunedirektør Ole Magnus Stensrud i Østre Toten kommune under Sikkerhetskonferansen i formiddag.

Even Rise

https://www.bbc.com/news/technology-58817658
https://www.dagensmedisin.no/artikler/2021/02/09/unn-undersoker-feilfakturering-av-pasienter/
https://www.aktuellsikkerhet.no/cybersikkerhet-datainnbrudd-it-sikkerhet/ostre-toten-kommune-dataangrepet-har-kostet-oss-mer-enn-32-millioner/700321

From research to business: Diri Timeline

1. 2013-2017 – Ph.d thesis in subject matter

2. 2017 – Discovered that we needed software and tools

3. 2017 – Market analysis without result

4. Autumn 2017 - Tried with student assignment to develop prototype, no interest

5. 2018 - Difficult to obtain internal funding and support for the project

6. Autumn 2018 - Tried again with student assignment, no interest

7. Spring 2019 - Established contact with NTNU TTO

8. June 2020 - Established Diri AS

Oppdragsgiver

Oppdragsgiver: IIK, Seksjon for Digital Sikkerhet, NTNU
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Cyber Risk Assessor

NTNU Seksjon for Digital Sikkerhet er i arbeidet med å innføre styringssystem for informasjonssikkerhet og en av hjørnesteinene i dette arbeidet er risikovurderinger. Risikovurderinger gjennomføres i dag ofte workshop-basert i henhold til valgt metodikk (ISO27005). Typisk er at vi dokumenterer alle risikovurderinger ved hjelp av Microsoft Excel, word, eller Latex noe som gir mye ekstra arbeid å holde styr på og er lite oversiktlig. Vi har behov for et styrings- og analyseverktøy som understøtter NTNU sin tilnærming til risikostyring ved å forenkle risikovurderingsprosessen, risikoregistrering, analyse og oppfølging.

Security in innovation: Risk of being eaten

- We need sponsors and funding, but…

- Diri is still young and vulnerable

- A lot of bigger fish out there

- Sales/investor pitches without giving away too much?

- Can somebody steal our idea?

- Can somebody hijack our design and technical solution?
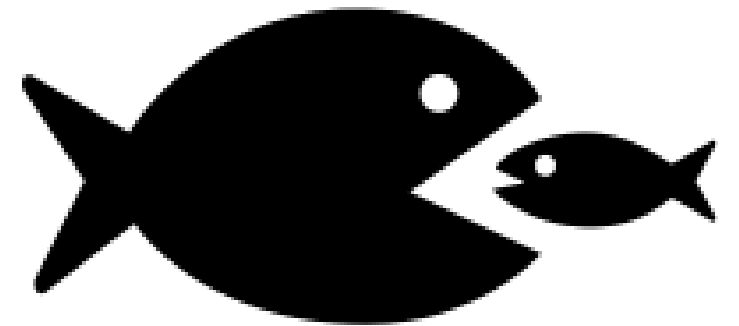
Security in innovation: Marketing and secrecy

- Obvious concern wit secrecy from competitors in market analysis

- Marketing vs Losing competitive edge

- No customers = No Diri

- A lot of interest, but…

- Not everyone looking to buy

- Trust (and background checks) are essential

Sales and marketing

Secrecy and Competitive edge
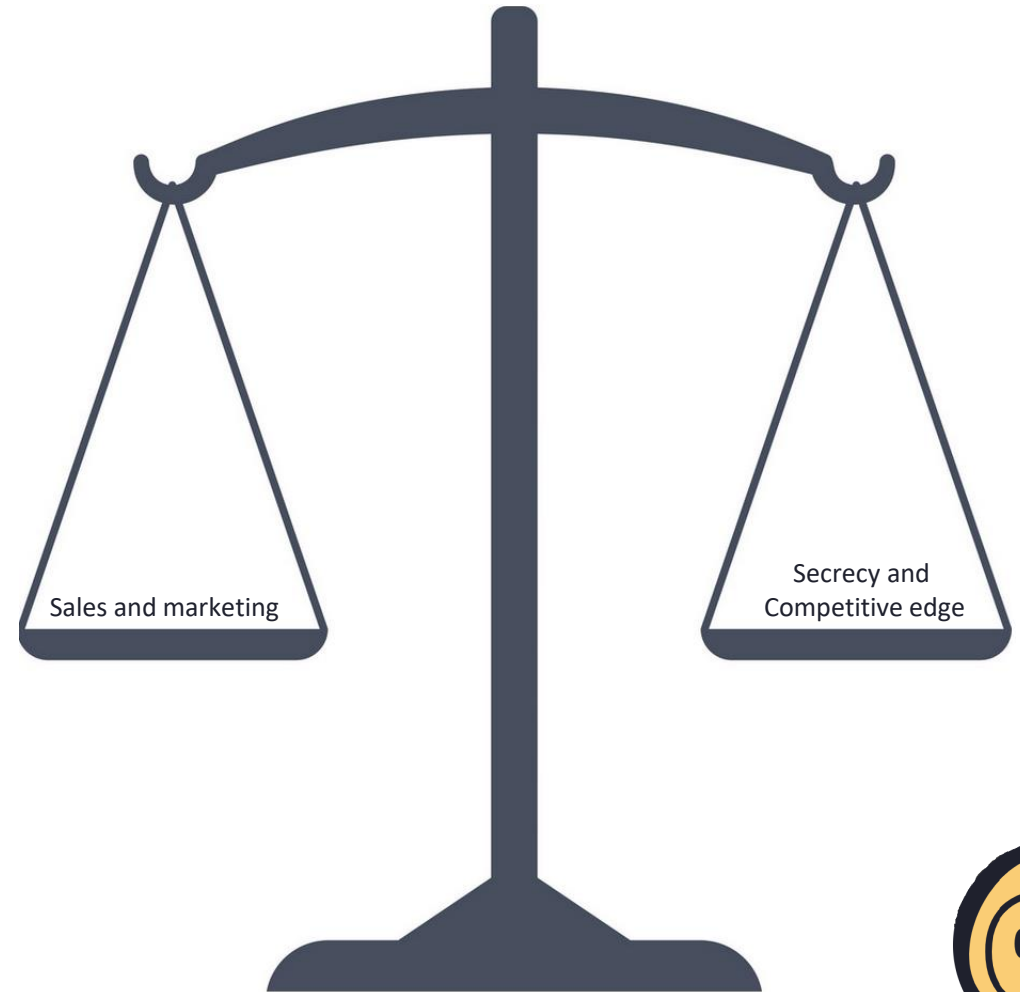
Being a modern cloud-based business: Our system portofolio

All Systems

Show private systems

New system

Name ↓↕	Unit	System Owner	Operation Status	Personal Identifiable Information
Filter ..	Diri	Filter ..	Filter ..	Change filter
Diri - Digital Intelligent Risk Identification	Diri	Gaute Wangen	Produksjon	Yes
Tripletex	Diri	Vebjørn Slyngstadli	Produksjon	Sensitive
Hubspot	Diri	Vebjørn Slyngstadli	Produksjon	No
Office 365	Diri	Vebjørn Slyngstadli	Produksjon	No
AzureAD	Diri	Vebjørn Slyngstadli	Produksjon	Sensitive
Domeneshop - DNS	Diri	Vebjørn Slyngstadli	Produksjon	Yes
GoDaddy - DNS og sertifikat	Diri	Vebjørn Slyngstadli	Produksjon	No
MS Azure Cloud Infrastructure	Diri	Vebjørn Slyngstadli	Produksjon	No
MS Partner Portal	Diri	Vebjørn Slyngstadli	Produksjon	No
Diri.ai Wordpress og hosting	Diri	Vebjørn Slyngstadli	Produksjon	Yes
Zoho desk og Radar app	Diri	Vebjørn Slyngstadli	Produksjon	Yes

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Security considerations being cloud-dependent

Some challenges:

- All of our services are cloud-based
- A lot happens in the browser
- Production is almost 100% dependent on internet connectivity
- Manage data flows
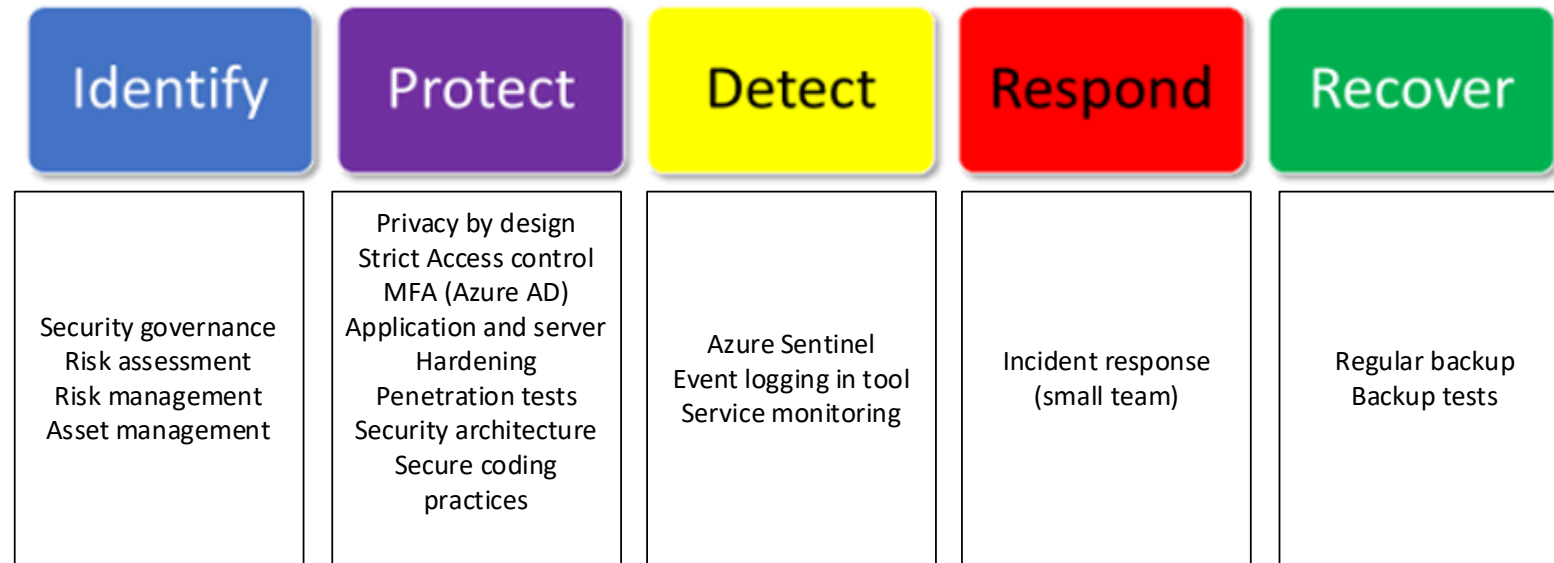- Manage information storage

Controlling risk:

- Connectivity: Redundant connections (mobile and physical connections)
- Data storage:
  - Data minimize
  - Routines for information classification and data storage

|	Confidentiality	Integrity	Availability	Impact to profitability
1	Public	No requirements	No requirements	Low
2	Protected	Expected	Two days	Medium
3	Confidential	Dependent	4 hours	High
4	Strictly confidential	Critical	Immediate	Critical

Our nr 1 risk as a cloud security provider: Data leakage

- Key asset is customer data in the Diri application

- Leaking customer data is critical.

- Among the key threats and vulnerabilities are:
  - Software bugs and weaknesses
  - Deliberate external hacking attacks on the software
  - Usernames and passwords

Identify	Protect	Detect	Respond	Recover
Security governance Risk assessment Risk management Asset management	Privacy by design Strict Access control MFA (Azure AD) Application and server Hardening Penetration tests Security architecture Secure coding practices	Azure Sentinel Event logging in tool Service monitoring	Incident response (small team)	Regular backup Backup tests

Conclusion: Risk managing the security risk management company

- Many aspects to consider as a startup
  - Competitive edge and openness
  - Need for customers and revenue
  - Risk of bigger fish

- Being cloud-based
  - Connectivity
  - Data flow and storage

- Key risks as a cloud security provider:
  - Data leakage
  - Other technical application risks:
    - What if our data can't be trusted?
    - Customer data loss
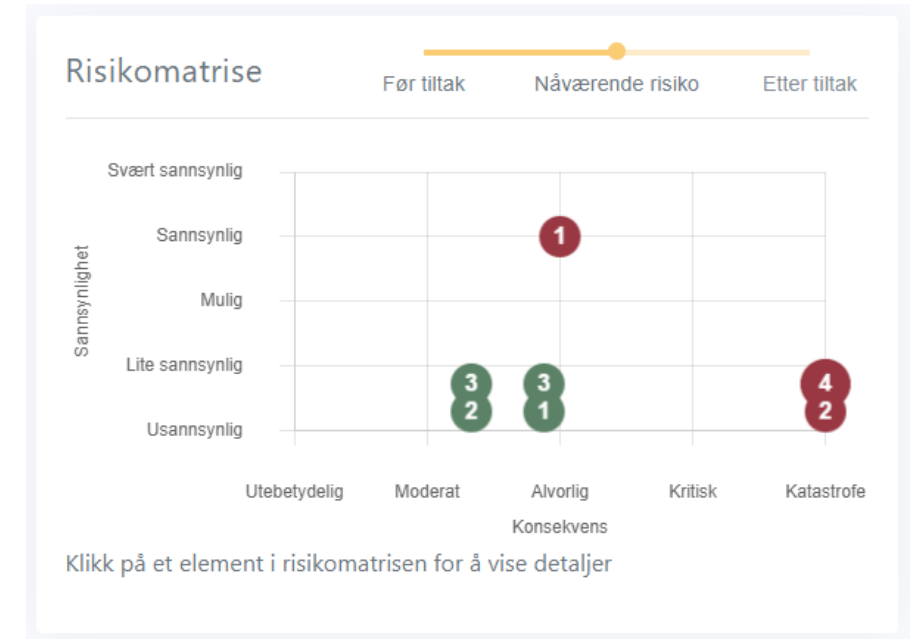
Thank you for your attention!

Information security isn't black magic!

Diri is the way.

https://www.diri.ai/

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