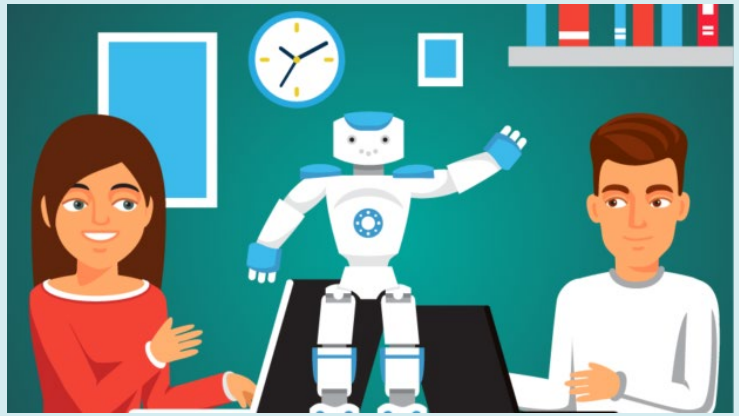
Auditing robotics and automated controls - revisjonsledernettverk IIA Norge

Martin Stevens, Konsernrevisjon, Gjensidige

01.03.22



Agenda

Background

- Robotics and automation
- Risks and challenges

Auditing – a practical example

Background

Strategisk viktig for Gjensidige

Operasjonelle mål (Oppdatert 24. november)

Følgende operasjonelle mål skal understøtte konsernets finansielle mål:

Kundeorientering

- Kundetilfredshet, konsern > 78
- Kundebevaring:
  - Norge > 90%
  - Utenfor Norge > 85%

Effektive og bærekraftige prosesser

- Digitaliseringsindeks, konsern> +10% årlig
- Digital skademelding, konsern > 85%
- Automatiserte skadeprosesser* , Norge > 70%

* Prosess etter at skader er rapportert

Digitale skademeldinger og automatiserte skadeprosesser

Bidrar til gode kundeopplevelser og kostnadseffektivitet. Forutsetter standardisering, digitale skadeskjemaer og algoritmer i vårt kjernesystem

INSURANCENEXUS

IoT + AI

The Key to Consumer-Led Insurance Innovation?

INTERNREVISJON

Digital arbeidskraft og intern-revisors rolle

Av
MAGNUS DIGERNES
Director KPMG Risk Consulting

En tid hvor virksomheters omgivelser endres stadig raskere kan internrevisorer spille en viktig rolle. Dette krever imidlertid at internrevisjonen «følger med i timen»; har god oversikt og forstår nye typer risikoer og hvordan de bør håndteres, og selv er tidlig ute med å ta i bruk ny teknologi. I denne artikkelen ønsker vi å belyse endringer knyttet til digital arbeidskraft og hvordan internrevisor kan håndtere disse endringene på en proaktiv måte.

Hva er «roboter» og digital arbeids-

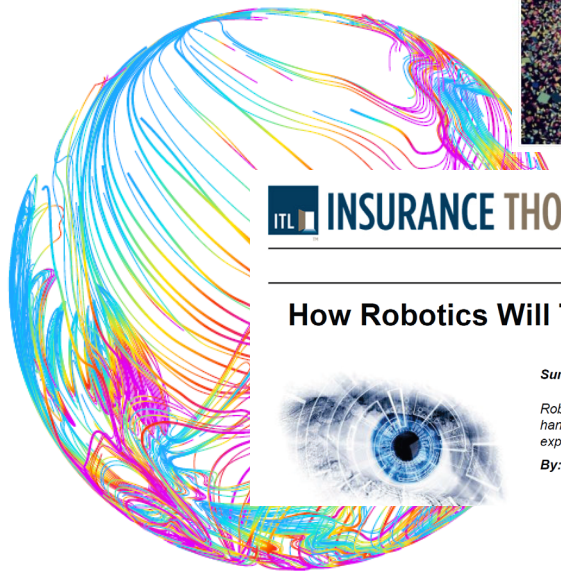
Teknologien er blitt billigere, og samtidig mer avansert og den er blitt kraftigere.

Risikoer

Når virksomheter implementerer ny digital arbeidskraft er det flere fallgruver. Ved å forstå disse fallgruvene kan virksomheten innføre de nødvendige forebyggende kontrollene. Ved implementering av digital arbeidskraft deler man gjerne inn fasene i autentisering og integrering, endringer, styring og oppfølging/overvåking.

Muligheter for internrevisjonen

Deloitte. Digital



Report lists key risks of artificial intelligence

A new report by the Economist Intelligence Unit says that, as AI becomes increasingly embedded in society, it will not only change the businesses that adopt it, but will also have significant economic, social and civic effects on citizens and consumers.

23 August 2018 @ 07:02 in News

McKinsey&Company
Financial Services

Article
April 2018

Insurance 2030—The impac the future of insurance

By Ramnath Balasubramanian, Ari Libarikian, and Doug McElhaney

DIGITALISATION, AUTOMATION & AI: TECHNOLOGY ADOPTION RISKS

The cost and efficiency benefits of automation and other digital processes can be transformative, if harnessed to their full potential. But organisations must also consider the risks associated with such transformation.

ITL INSURANCE THOUGHT LEADERSHIP

June 25, 2018

How Robotics Will Transform Claims

Summary:

Robotics process automation (RPA) lets insurers handle high-volume and complex data actions at exponentially greater speed than in the past.

By: *Rob Dietz, Chris Raimondo, Jim Kremer*

accenture

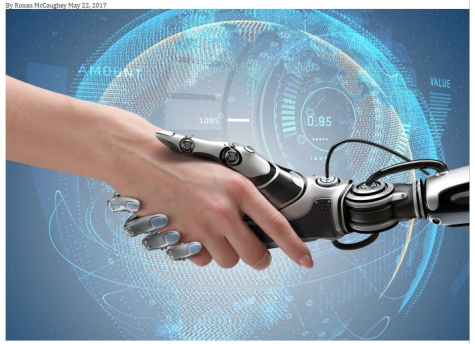
Strategy | Consulting | Digital | Technology | Operations

Accenture Technology Vision for Insurance 2017 Video

AI Reshaping Insurance

Zurich Insurance Group uses AI for personal injury claims

By Ronan McCaughey May 22, 2017



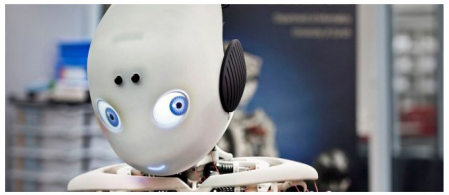
Zurich Insurance Group's chairman Tom de Swaan has said the insurer is deploying artificial intelligence (AI) in deciding personal injury claims after trials cut the processing time from an hour to just seconds.

Gjensidige

From mystery to mastery:
Unlocking the business value of Artificial Intelligence in the insurance industry

FSB Warns on Impact of Artificial Intelligence

Posted on 2 November 2017 by InsuranceEdgeEditor in Artificial Intelligence, InsureTech, Life/Health/Critical illness // 0 Comments

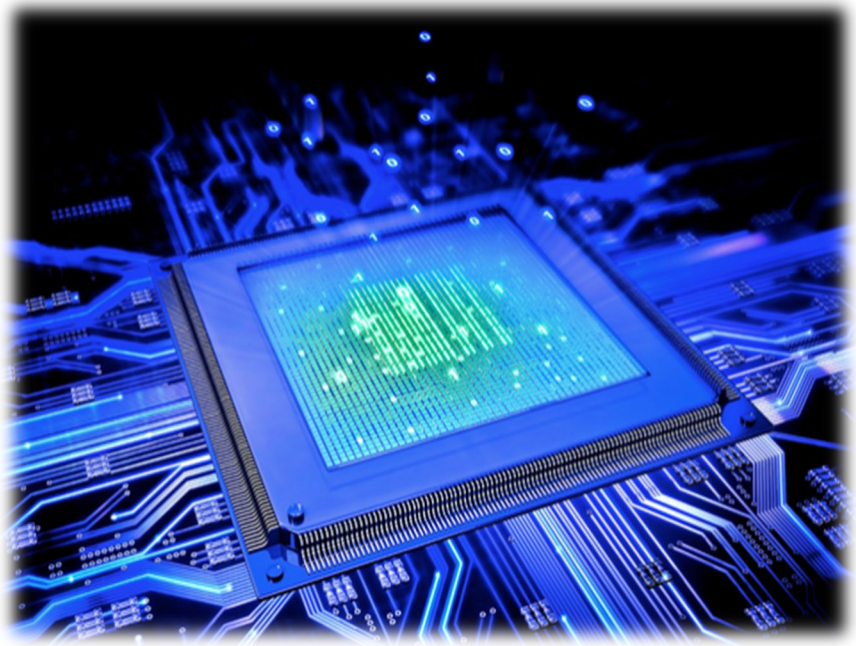


The Financial Stability Board (FSB) published a report yesterday that considers the financial stability implications of the growing use of artificial intelligence (AI) and machine learning in financial services.

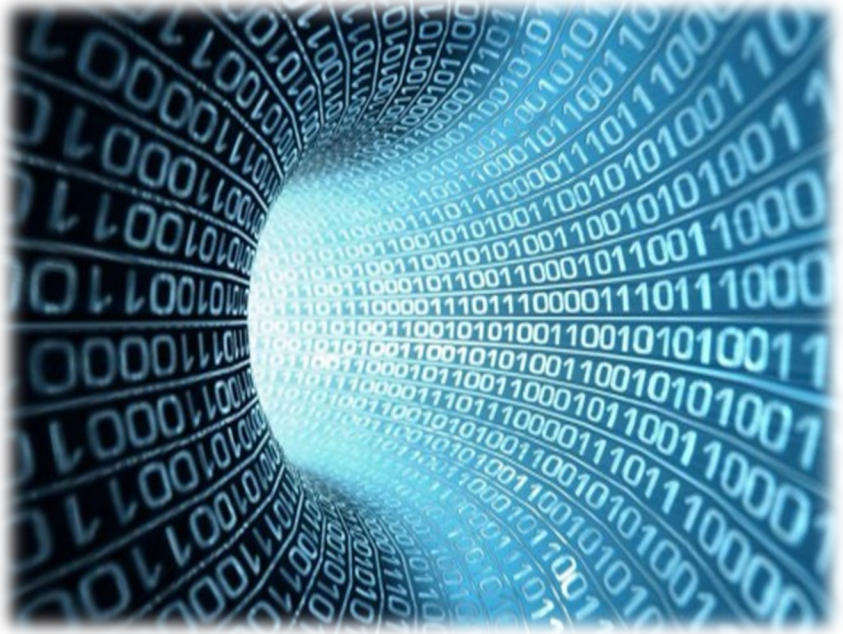
Chatrobot lansert for pilot i dag

Av Fredrik Isdal Selmer | Publisert: 18.09.2017

Why now?



Better and cheaper data processing power



Exponential increase in amount of data

The future of car insurance?

https://www.youtube.com/watch?v=ZKKADm5UbHQ

Robotics

Physical robots

Gjensidige's robot

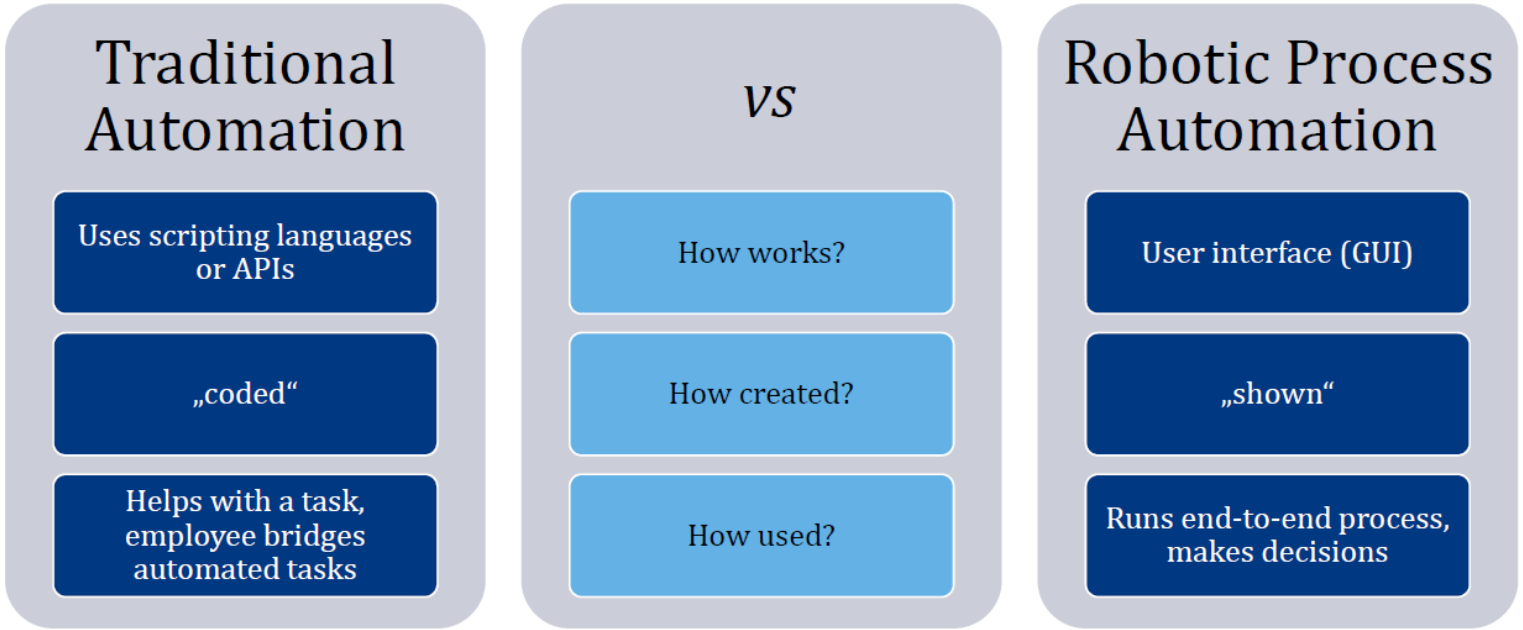
Claims robot

So long as the robots are not physical robots there is no distinction between automation and robotics hence Robotics Process Automation or RPA

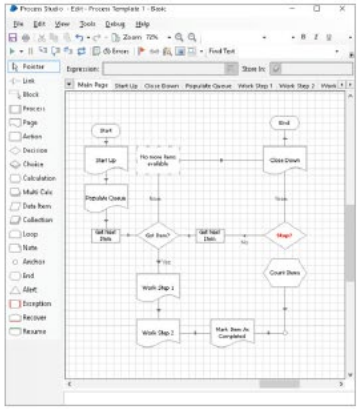
RPA

Robotic process automation is a digital employee

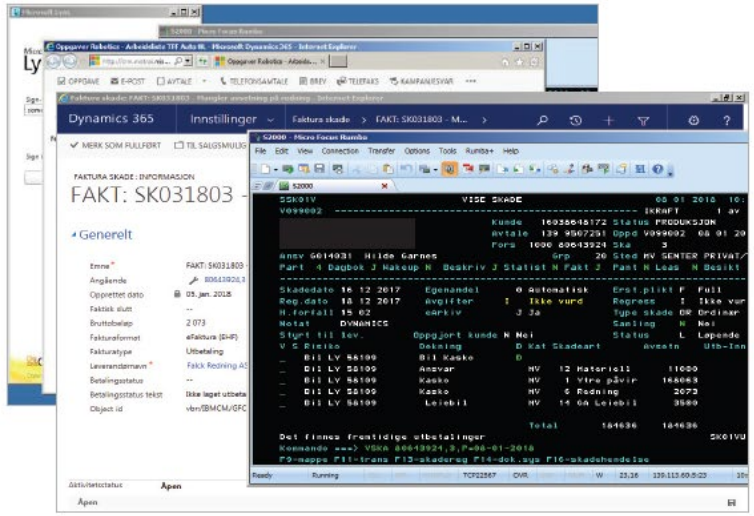
RAMIRENT



RPA



We describe a process exactly as it is to be performed



The “robot” performs the task in our systems as if it was an employee

Program controlled automation

- No physical robot
- Uses existing systems
- Those who are familiar with macros and macro programming will recognise this tool
- Has access as if an employee
- Its strength is that it can work across various systems and is quick to implement

➢A digital/virtual employee

Benefits of RPA
if addressed correctly

Benefits

Increased employee and customer satisfaction

Efficiency gains

Improved compliance

Key success factors

RPA is not the solution to everything

Use more time on design rather than programming

Don’t forget - monitoring, controls and maintenance

Artificial intelligence

As per Wikipedia:

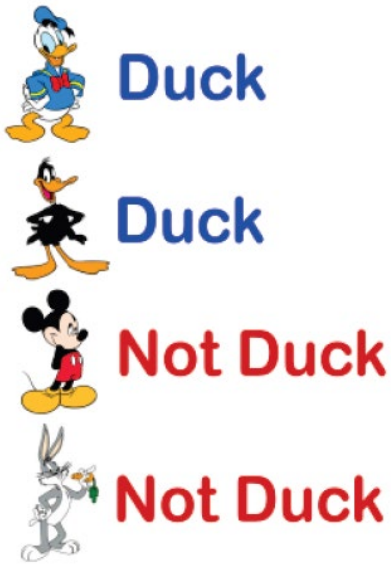
- *“Artificial intelligence is apparently intelligent behaviour by machines, rather than the natural intelligence (NI) of humans and other animals…”*

- *“…In computer science AI research is defined as the study of "intelligent agents": any device that perceives its environment and takes actions that maximize its chance of success at some goal.”*

Machine learning

Machine learning is a technique which turns A.I. into reality

- Machine learning is a technique which allows computers to learn without having to define clear rules
- Machine learning is used in many of the solutions that are included as A.1. i.e. chatbots, self-driving cars, chess etc.



Practical use of A.I.

Picture

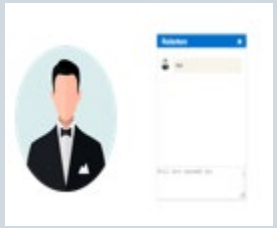
- Self driving cars

- Loss adjustment motor vehicles

Text

- Sort, categorise emails

- Chatbot



Speech

- Analyse content of a phone call

- Dictate calls

Numbers

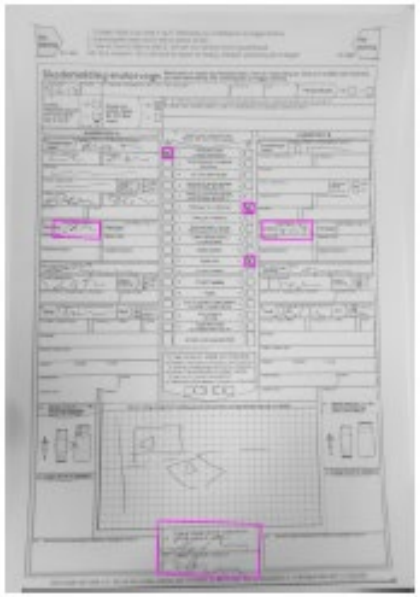
- CRM and customer insight

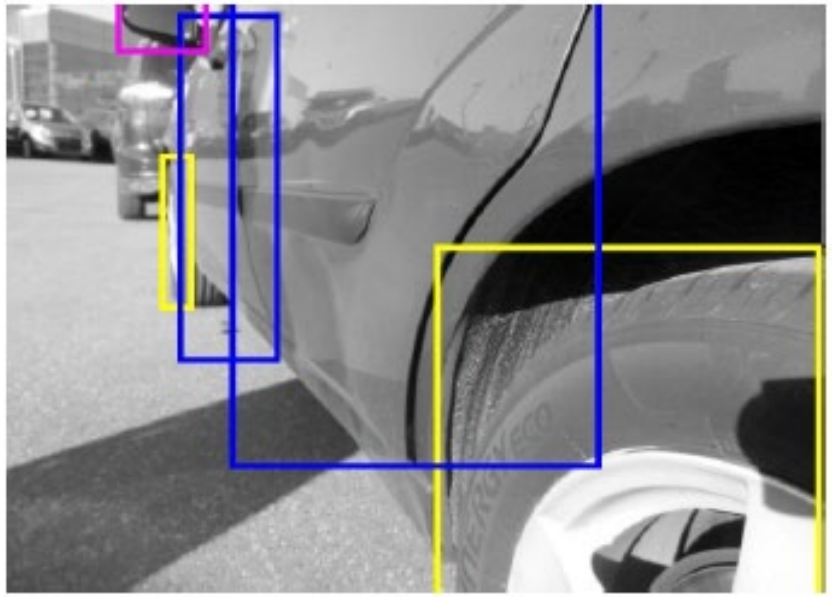
- Better pricing

A.I. use in practice

Gjensidige's first first achievement in claims area

- We have used picture recognition as part of an automated loss adjustor program in order to distinguish types of damage and to decide on the appropriate car workshop for repairs
- We have developed technology to read the claims form as photographed by the customer in order to make the decision regarding fault without having to involve a physical loss adjustor





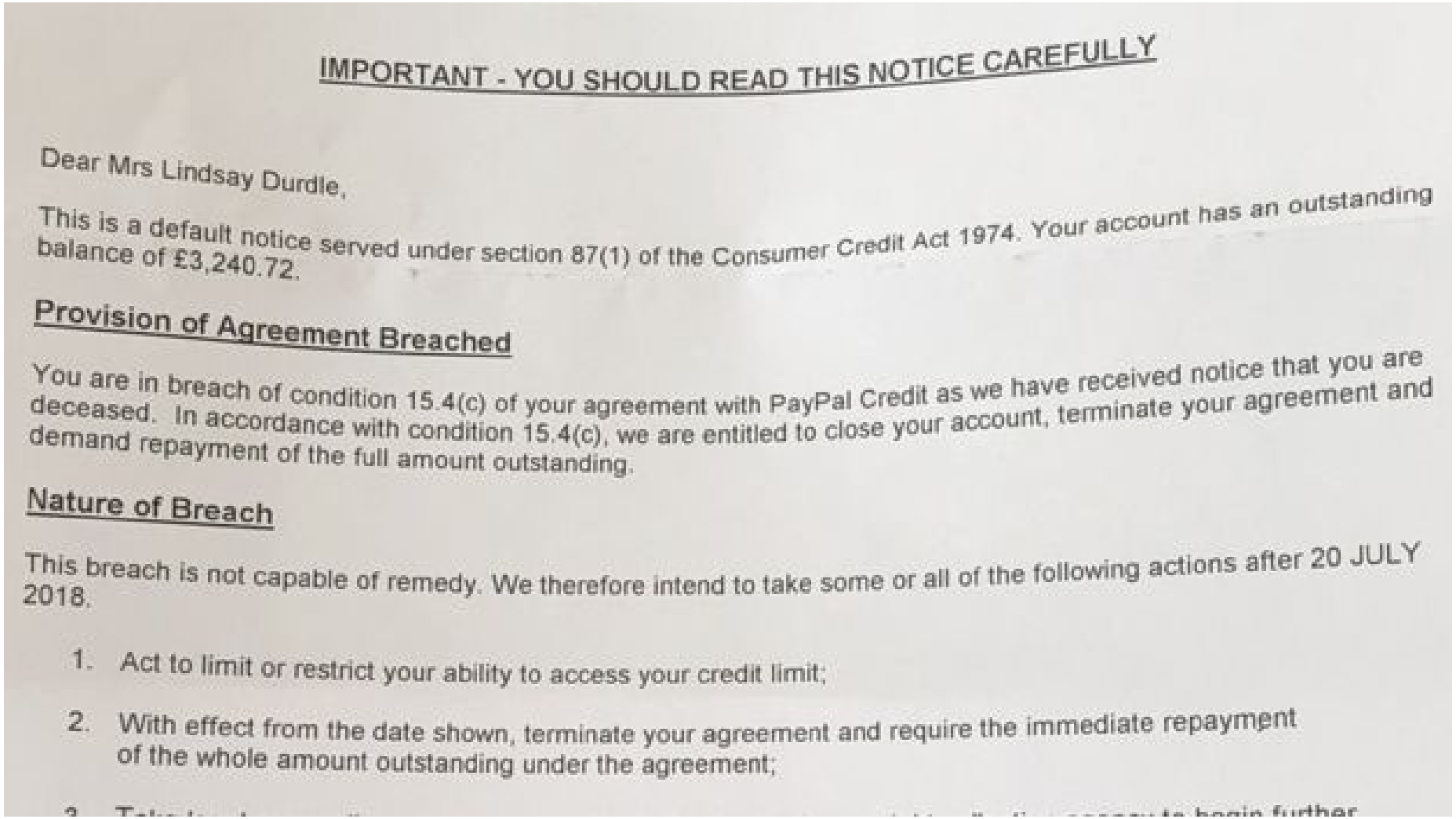
RPA main risks

Governance	• Change management • Ownership of RPA initiative • Responsibility for robot's operations
Security	• Access rights to robot • Developers v. operators • Vulnerability to attack
Continuity	• Disruptions • Dependency on other processes/programs

FSB report

- The lack of interpretability or "auditability" of AI and machine learning methods could become a macro-level risk. Similarly, a widespread use of opaque models may result in unintended consequences.
- As with any new product or service, there are important issues around appropriate risk management and oversight. It will be important to assess uses of AI and machine learning in view of their risks, including adherence to relevant protocols on data privacy, conduct risks, and cybersecurity. Adequate testing and 'training' of tools with unbiased data and feedback mechanisms is important to ensure applications do what they are intended to do.

Pitfalls of automation



IMPORTANT - YOU SHOULD READ THIS NOTICE CAREFULLY

Dear Mrs Lindsay Durdle,

This is a default notice served under section 87(1) of the Consumer Credit Act 1974. Your account has an outstanding balance of £3,240.72.

Provision of Agreement Breached

You are in breach of condition 15.4(c) of your agreement with PayPal Credit as we have received notice that you are deceased. In accordance with condition 15.4(c), we are entitled to close your account, terminate your agreement and demand repayment of the full amount outstanding.

Nature of Breach

This breach is not capable of remedy. We therefore intend to take some or all of the following actions after 20 JULY 2018.

1. Act to limit or restrict your ability to access your credit limit;
2. With effect from the date shown, terminate your agreement and require the immediate repayment of the whole amount outstanding under the agreement;

Auditing automation

- a practical example

Prior to audit

- Audit project agreed in audit plan
- Expertise – used 2 in house IT competent persons in project (otherwise would have needed to insource)
- Review overall information – intranet, articles etc.

Guidance

Issue 9 / Special Three-part Series: Artificial Intelligence, Internal Audit's Role, and Introducing a New Framework

This special three-part edition of Global Perspectives and Insights explores internal audit's role in Artificial Intelligence by discussing associated risks and opportunities. The paper also introduces an AI Auditing Framework comprised of six components, all set within the context of an organization's AI strategy.

Arabic: Part III

English: Part I, Part II, and Part III

French: Part I and Part II

Portuguese: Part I, Part II, and Part III

Turkish: Part I, Part II, and Part III

https://global.theiia.org/knowledge/Pages/Global-Perspectives-and-Insights-Archives.aspx

Strategy

Relevant AI Strategy Objectives and Activities or Procedures	
Engagement or Control Objective(s)	**Activities or Procedures**
Be actively involved in AI projects from their beginnings, providing advice and insight contributing to successful implementation.	Attend AI project team meetings.
The organization has a defined AI strategy.	Determine whether an AI strategy has been documented and if so, verify that the strategy: ■ Articulates the intended results of AI activities (strategic objectives). ■ Articulates at a high level how the AI objectives will be accomplished (strategic plan).
Provide assurance over the readiness and response to cyber threats.	Leveraging an established cybersecurity framework, work collaboratively with IT and other parties to ensure effective defenses and responses are in place.
There are sufficient resources (staff and budget) to implement the AI strategy.	Review process for determining staff and budget needs to support AI.
Advise on whether the strategy adequately considers AI threats and opportunities.	Review any existing assessments of AI threats and opportunities. If no assessments exist, make recommendations for moving forward (how the organization could plan to identify AI threats and opportunities).

Global Perspectives: Artificial Intelligence II

Governance

Relevant AI Governance Objectives and Activities or Procedures	
Engagement or Control Objective(s)	**Activities or Procedures**
Provide assurance that AI governance structures have been established, documented, and are working as designed.	Review business models and organizational structure; determine if business models and organizational structure reflect the organization's AI strategy. Review AI policies and procedures; determine whether organizational policies and procedures clearly identify AI roles and responsibilities related to AI strategy, governance, data architecture, data quality, ethical imperatives, and measuring performance.
Assess whether those with AI responsibilities have the necessary competencies to be successful. For example, those responsible for ethical imperatives should be competent in assessing the ethical behavior of those who provide human input into the AI, and should be independent of the AI activity.	Interview those with AI responsibilities. Review AI job descriptions, requisite skills, etc., and verify whether those responsible have their stated qualifications.
Provide assurance that AI policies and procedures have been established and documented.	Review AI policies and procedures and determine if they sufficiently address AI risks. Determine if policies and procedures provide for periodic "what if" analysis or scenario planning.
Provide assurance that AI activity audit trails provide sufficient information to understand what AI decisions were made, and why.	Review AI audit trails. Determine whether audit trails provide sufficient information to understand what decisions were made, and why.
Provide assurance that policies and procedures have been implemented and are working as designed, and that employees are compliant.	Observe employees implementing AI procedures. Review helpline/hotline reports and follow up on any reports alleging noncompliant or malicious activities related to AI. Interview a random sample of employees and determine if they are knowledgeable about AI policies and procedures. Identify and review AI access policies and procedures. Evaluate access policies and test access controls. Assess whether regulatory control objectives reflect emerging regulations, standards, and guidance.

Relevant Data Architecture & Infrastructure Objectives and Activities or Procedures	
Engagement or Control Objective(s)	**Activities or Procedures**
Provide assurance that the organization is cyber resilient. Cyber resilience includes, but is broader than, cybersecurity alone. Cyber resilience encompasses security (resistance), reaction, and recovery.	**Understand** and audit big data (see The IIA's Practice Guide: Understanding and Auditing Big Data). **Assess** whether the organization is preparing for compliance with new technology regulations, such as the EU's General Data Protection Regulation (GDPR). **Assess** whether the organization's disaster recovery protocols include AI failures, including the breakdown of controls that maintain the rules set forth by AI governance.
Provide assurance that the data infrastructure has the capacity to accommodate the size and complexity of AI activity set forth in the AI strategy.	**Assess** whether the infrastructure is capable of handling structured and unstructured data.
Provide assurance that the organization has established a data taxonomy. **Evaluate** the quality, completeness, and consistency of use for the enterprisewide data taxonomy.	**Assess** whether the taxonomy is robust enough to accommodate the size and complexity of AI activities.

Data quality

Relevant Data Quality Objectives and Activities or Procedures	
Engagement or Control Objective(s)	**Activities or Procedures**
Provide assurance over the reliability of AI's underlying algorithms and the data on which algorithms are based.	**Obtain** a sample of the raw data that are inputs to AI. **Verify** that the organization has implemented methodologies to validate AI outcomes with actual, real-world outcomes, and that policies and procedures are in place to continuously measure, monitor, escalate, and rectify inconsistencies between the two.
Provide assurance that data input is reconciled and normalized to maximize accuracy.	**Verify** that the organization has policies and procedures in place to continuously measure, monitor, escalate, and rectify data accuracy and integrity issues. **Confirm** that the organization is consistently following and monitoring a formalized data reconciliation framework, which includes a rationale for differing methodologies and results should they exist.
Provide assurance that aggregated data is complete.	**Verify** that the organization has policies and procedures in place to limit data input bias.
Provide assurance that the completeness of data is measured and monitored and that any material exceptions that impact decision-making are identified and explained. This should be done whether the exceptions are determined by humans or AI.	**Review** AI metrics and metric reports. **Assess** whether those responsible for decision-making have received and considered explanations on material exceptions related to data quality.

Checklist for AI

- Document where AI is used within the firm — Strategy
- AI use should have assigned owners, who are accountable for the algorithm's use and performance. — Governance
- Process description for the approval, amendment to and decommissioning of use of AI
- Describe the testing and validation process for AI, including who has responsibility for these activities. — Data quality
- Set out minimum requirements for the monitoring and risk management of AI, including escalation procedures relating to limit breaches. — Governance
- All relevant parties (eg Front Office, Risk Management, Other Systems and Controls functions) should have considered and to have signed-off on the risks that AI could expose the firm to.
- Manual and automated controls that stop AI use or prevent user access and with manual intervention required to re-start use. So called, 'kill-switch' controls.

Audit objective

To evaluate whether Gjensidige has established adequate management processes for the use of technology for automation/roboticization with the objective of achieving secure, effective and more cost efficient processes which also result in a positive customer experience.

Focus areas:

- Strategic focus, objective setting and monitoring of status
- Building competence, internal communication and participation
- Management structures including allocation of tasks between Group functions and business areas as well as methodology for prioritisation of processes to be developed
- Processes for implementation and quality assurance

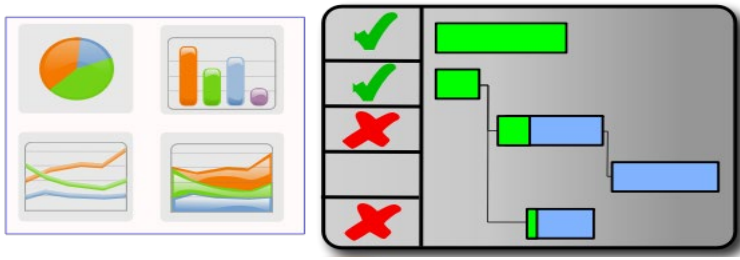
Strategy

Governance

Data quality

Audit documentation and testing

- Interviewed 24 persons in both Group Technology and Development and the business areas (of which 2 selected)
- Document analysis and review – routine and processes, project management and status reporting
- Review of controls in business area and program documentation for chosen projects



Automatic processing

Temporekord i oppgjør

Publisert: 22.02.2017

Mandag meldte en kunde en reiseskade og fikk erstatning etter fem minutter. Det er det raskeste oppgjøret Gjensidige har gjennomført noensinne.

Kunden sendte skademelding om en avbestilling via meld
skade på kundens side hos Gjensidige. Det gikk fem minutter før kunden fikk en bekreftelse på e-post om at saken var registrert, og umiddelbart etterpå mottok vedkommende en ny e-post med erstatningsoppgaven.

Der fremkommer det hva som har blitt utbetalt og til hvilken konto. I dette tilfellet var erstatningen på cirka 2 400 kroner. Saken ble gjennomført helt automatisk.

Automatiserer kontinuerlig
- I denne runden har vi valgt å automatisere avbestilling, utlegg til lege/medisiner ved sykdom og utlegg til tannlege ved tyggeskader eller tannverk, forteller Joakim Olsen, leder i Reisesenteret. Han er svært fornøyd med den nye rekorden og håper å sette flere!

- Vi skal snart gjennomføre en workshop sammen men produkt hvor vi skal optimalisere vilkårene mot automatisering, sier han. Joakim ser frem til et spennende år med videre utvikling av automatiserte tjenester.

Fakta/bakgrunn
Den nye klienten til Reise kom på lufta mandag 16. januar. De dataene kunden legger inn i skademeldingen legger seg inn i reiseklienten, slik at saksbehandlerne ikke lenger trenger å fylle ut skademeldingen.

Da man nå kan bruke alle dataene som kunden legger inn, åpnet mulighetene seg for å få til automatisering av oppgjør basert på svarene i skademeldingen.

Alle spørsmål og svar har nå en egen vekting som viser om saken skal automatiseres eller gjøres manuelt.

Claim paid out to customer account 5 minutes after registered by customer

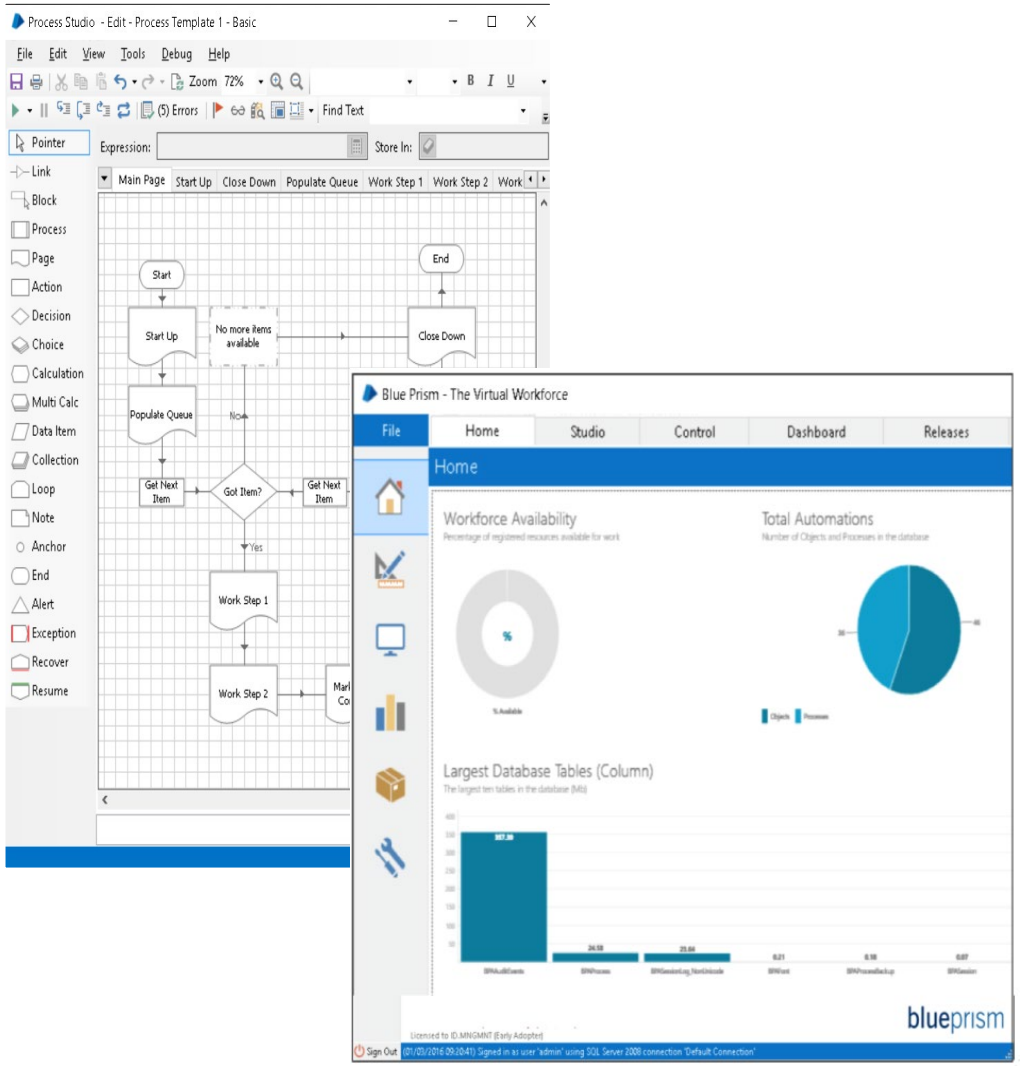
Claim processed 100% automatically.

Automatic settlement based on the information provided on the customer's web claim form

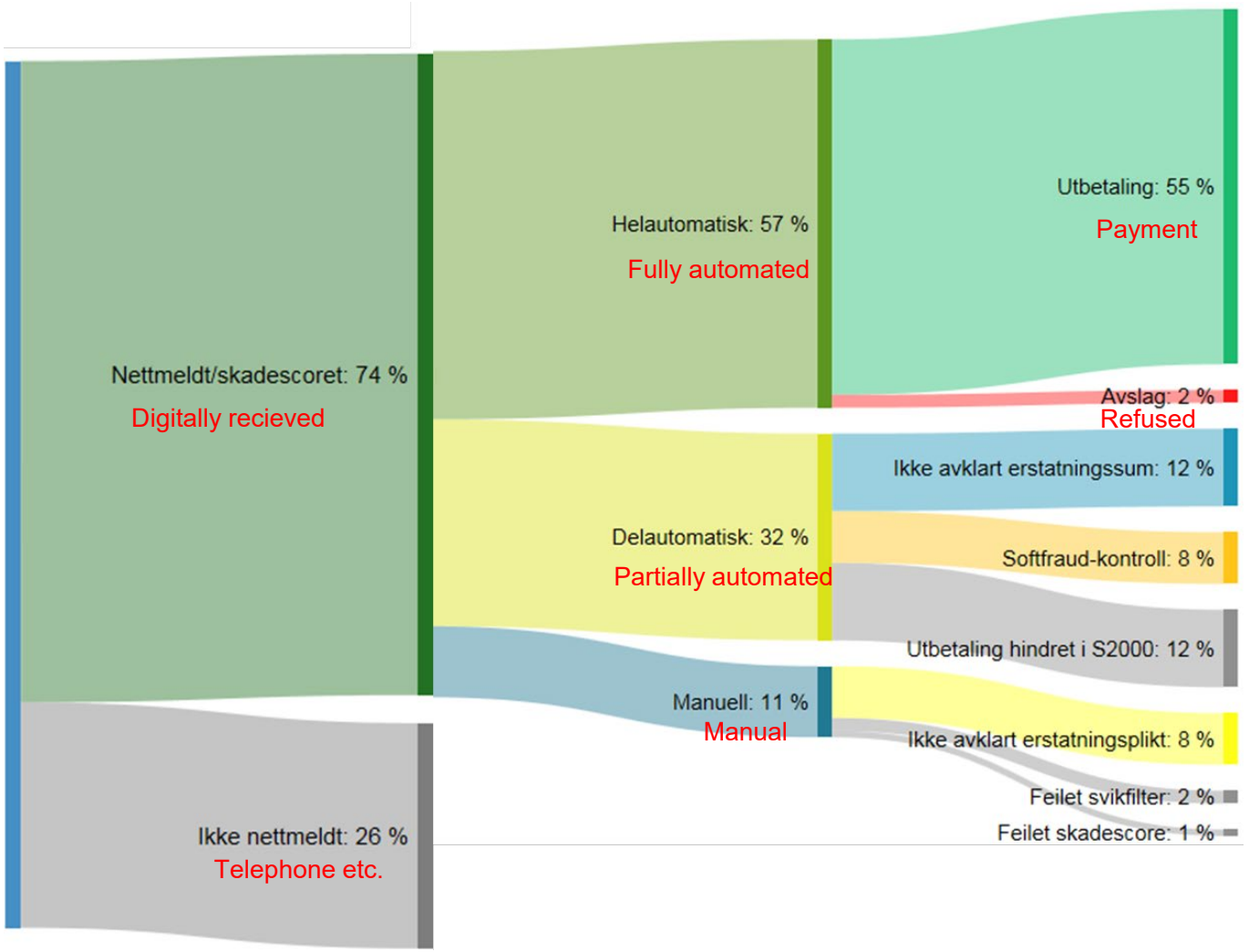
Each Q & A weighted to decide whether automatic or manual treatment

Review of automated processes

	Focus area	Processes for implementation and QA
No.	Risk	Audit task
1	Scarce resources are used in the wrong areas and possible major improvements are not implemented	Evaluate the basis for how processes and concepts (LEAN, RPA, AI) are prioritised to be used.
2	Programs can be changed either by mistake or deliberately which can lead to errors.	Evaluate and test access controls to code changes as well as parameter controls for automated processes.
3	Programs can be changed either by mistake or deliberately which can lead to errors.	Evaluate and test change controls for automated process.
4	Lack of testing can lead to errors in production.	Evaluate and test documentation for a sample of processes already in production.
5	Poor control design can make operations less secure.	Evaluate key controls for a sample of automatic processes, monitoring, emergency stop button etc
6	Poor documentation can make it difficult to identify the source of errors and make corrections.	Review documentation of coding and test sample of programs as to whether the documentation is of satisfactory quality
7	Lack of compliance with data privacy requirements can have financial and reputational consequences.	Evaluate whether sufficient information is provided to customers where automatic processes are used and profiling cf. GDPR requirements.



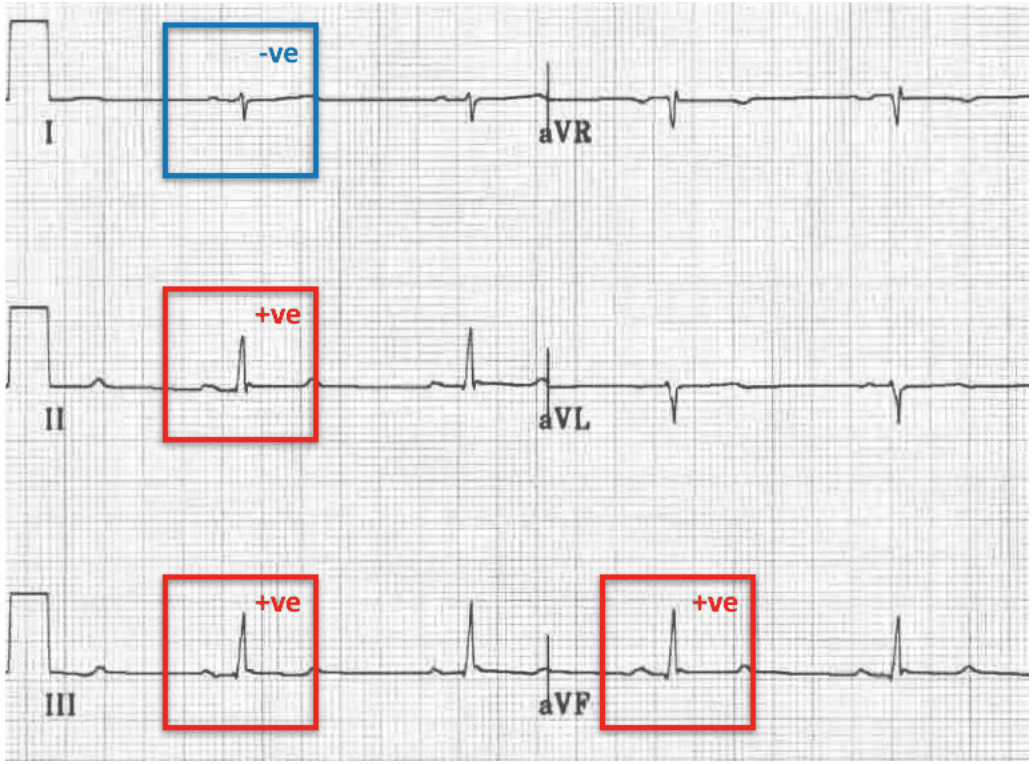
Automated process



Sankey diagram

Deviation report

- Where automatic process a certain number of claims (e.g. 5 %) which would have been fully automated are sent to manual process.
- Claims handler unaware of this and treats the claim manually
- Report afterwards identifying where the results of manual and automatic treatment differ
- Understand and re-calibrate!



Audit report

Positive issues

Process development

- Good design and documentation of overall development process and project management
- Good competence in robotics development
- Good separation of responsibilities and coordination between business areas and IT development. Business areas have dedicated resources.
- Formal forum established including business areas and IT development to monitor projects.
- RPA also reveals weaknesses in existing systems where development needed
- Full logging of code changes and robot use.

Project management

- Use of customer score positive
- Reconciliation control
- Product profitability management as backstop.

Gjensidige

Konsernrevisjonen

Til:
Kopi:
Dato:
Revisjonsprosjekt:

Revisjonsformål:
[Beskrivelse av formålet – hentes fra oppdragsbeskrivelsen]
Omfang – fokusområder:
[Beskrivelse av fokusområdene

Totalkonklusjon:
[**Revisjonsformålet skal besvares.** Sammendrag av hovedinntrykket og de viktigste observasjonene. Start alltid med positive forhold. Gå deretter inn på svakhetene. I sum skal de overordnede kommentarene lede til hovedkonklusjonen. Så langt det er mulig skal det komme tydelig fram hvilke forhold som relaterer seg til design og hvilke som relaterer seg til etterlevelse. Fremstillingen skal være så balansert som mulig.]

Andre fokusområder (ref. instruks for Konsernrevisjon):		
Identifisert brudd på lover og regler		
Identifisert svakhet som muliggjør misligheter		
Antall observasjoner	Kritiske - **1** Viktige - **2**	[an ob

Risikoindikator:	**Status 2017**	**Stat**
•		
•		

Gjensidige

Konsernrevisjonen

Revisjonsteam:

[Navn] (Oppdragsansvarlig)
[Navn deltaker]
Gaute Brynildsen (Revisjonsdirektør)

Tidsrom:

Oppstartsmøte: xxx
Rapportutkast: xxx
Endelig rapport: xxx

Rapportering av resultater:

Endelig kvalitetssikret revisjonsrapport sendes alltid til leder for det reviderte området, med kopi til leder på nivået over. Ved rapport med karakter mindre tilfredsstillende eller lavere kopieres aktuell konserndirektør. Rapporten kan også sendes til andre relevante ledere hvis Konsernrevisjonen mener dette er nødvendig. Hvem som mottar rapporten vil fremgå av kopilisten.

Grunnlag for Konsernrevisjonens konklusjon:

Intervjuer	
Dokumentanalyse/ - gjennomgang	
Testing/ Dataanalyser	

Konsernrevisjonens skala for konklusjoner	
	Meget God Etablerte prosesser og kontroller bidrar til måloppnåelse. Det er ikke observert compliancebrudd og risikoen er lav
	Tilfredsstillende Etablerte prosesser og kontroller bidrar i rimelig grad til måloppnåelse. Det er ikke observert vesentlige compliancebrudd eller risikoer
	Mindre tilfredsstillende Prosesser og kontroller har vesentlige svakheter og medfører høy risiko for manglende måloppnåelse, compliancebrudd og/eller tap
	Ikke tilfredsstillende

Gjensidige

Konsernrevisjonen

Positive forhold

Gjensidige

Konsernrevisjonen

Fokusområde x

Tittel	**Ansvarlig**
	leder
Observasjon	**Prioritet**
[En observasjon oppstår dersom det er avvik mellom forventet/korrekt tilstand og faktisk tilstand. Observasjonen bør så langt som mulig utrykke: - Tilstand (forholdet som er observert) - Kriterium (standarden som det vurderes i forhold til/ hva man kan forvente) - Årsak (den bakenforliggende årsaken til at det er avvik mellom kriterium og tilstand) Avviket skal fremgå tydelig av dokumentasjon i revisjonsprosjektet ("Audit trail")]	**1/2/3**
Risiko	
[Risikoen eller den potensielle effekten som oppstår som følge av avviket beskrevet over]	

Anbefaling	**Ledelsens kommentar**	**Frist**	**Ansvarlig**
[Ett eller flere tiltak for å redusere risikoen beskrevet over. Hvis det ikke er åpenbart hvordan anbefalingen bidrar til å redusere risikoen, må dette forklares spesifikt. Bruk punkttegn for å skille mellom tiltakene]	[Tilbakemeldinger fra personen som er ansvarlig for det reviderte området. - Om vedkommende er enig i at det foreligger en observasjon og alvorlighetsgraden av denne - Om vedkommende er enig i at anbefalte tiltak er effektive i forhold til å redusere risikoen		

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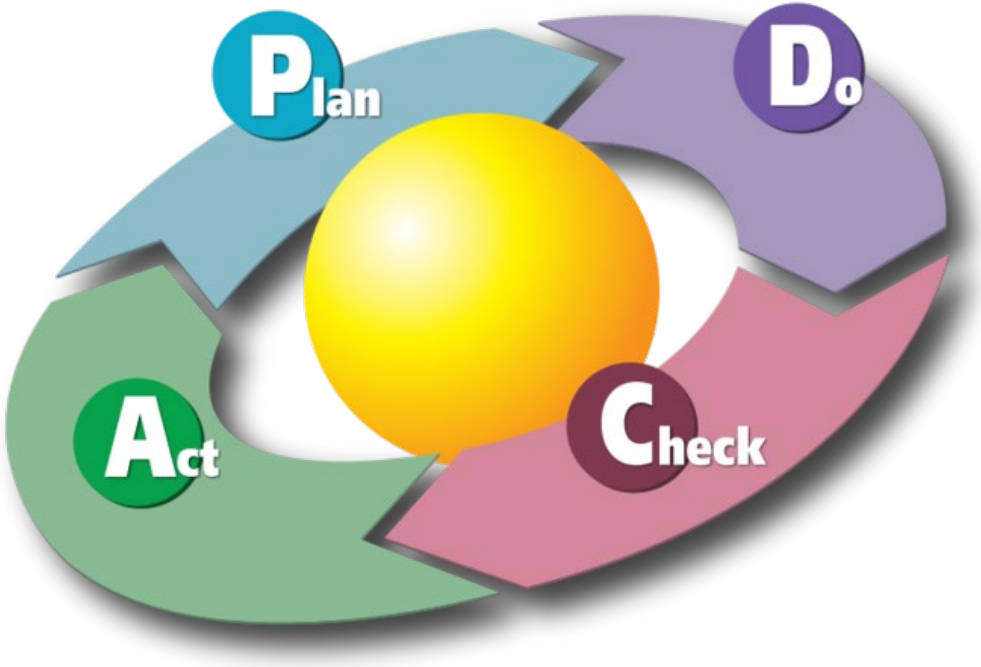
Examples of areas for improvement as a result of the audit

- Servicing of business areas and KPIs
- Access rights to exclude non-personal id’s
- Final quality review of coding
- Establish general training programme
- Policy for new products risk assessment to include new processes



Reflections for future audit of the area

- Processes for monitoring and risk management including by 2nd line
- Data architecture and infrastructure
- Security issues and cyber risk
- Change management
- Further programming reviews
- Kill switch triggers

…and finally

Thank you for your attention

Any questions?