



# Sundhedsdata og interoperabilitet

Process- and Protocol-aware  
Information Systems in Healthcare

Informationshåndteringssystemer (Kp 19+ artikel)

2. Februar, 2026

Thomas Hildebrandt

Software, Data, Personer & Samfund  
Datalogisk Institut

KØBENHAVNS UNIVERSITET



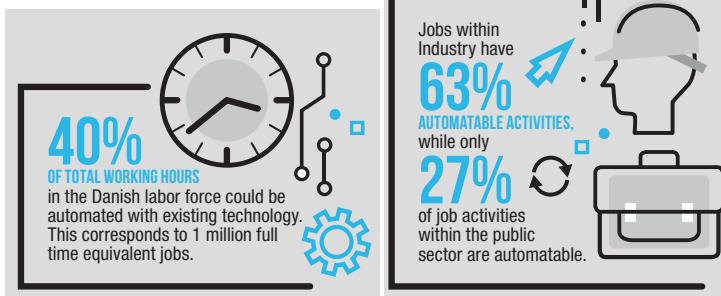
# Digitalisering af arbejdsgange & AI

May 2017

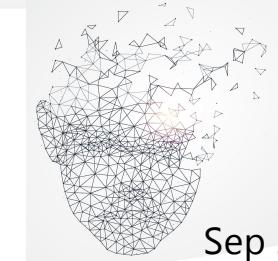
# A FUTURE THAT WORKS:

the impact of automation  
in Denmark

McKinsey&Company



THE TUBORG RESEARCH CENTRE  
FOR GLOBALISATION AND FIRMS  
INSTITUT FOR ØKONOMI  
AARHUS UNIVERSITET



Sep 2019

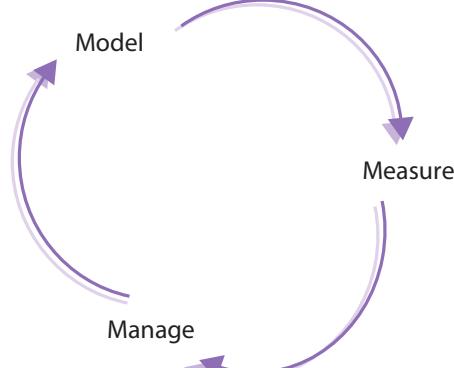
AN AI NATION?  
Harnessing the opportunity of  
artificial intelligence in Denmark

DIREC - DIGITAL RESEARCH CENTRE DENMARK  
Epicentre for accelerating research, business and education in digital technologies in Denmark



2021

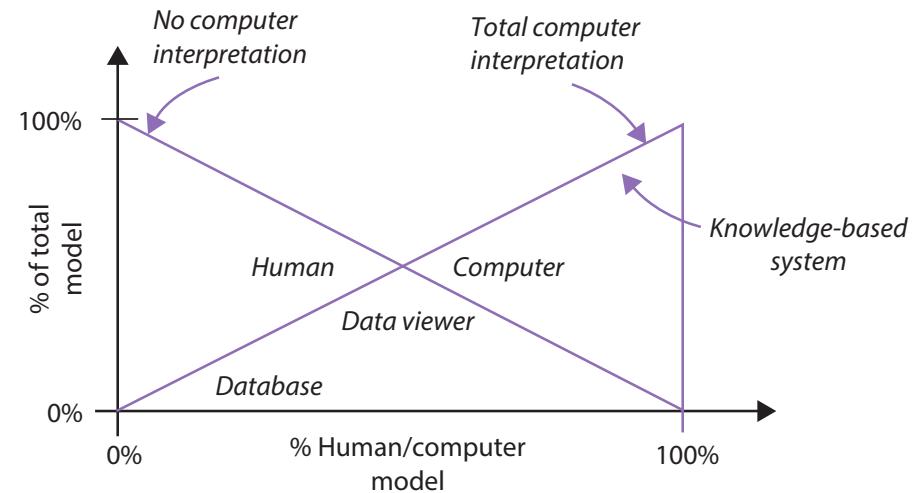
## Information management cycle



Eksempler:

Holde en sund syre/base-ballance

Strålebehandling

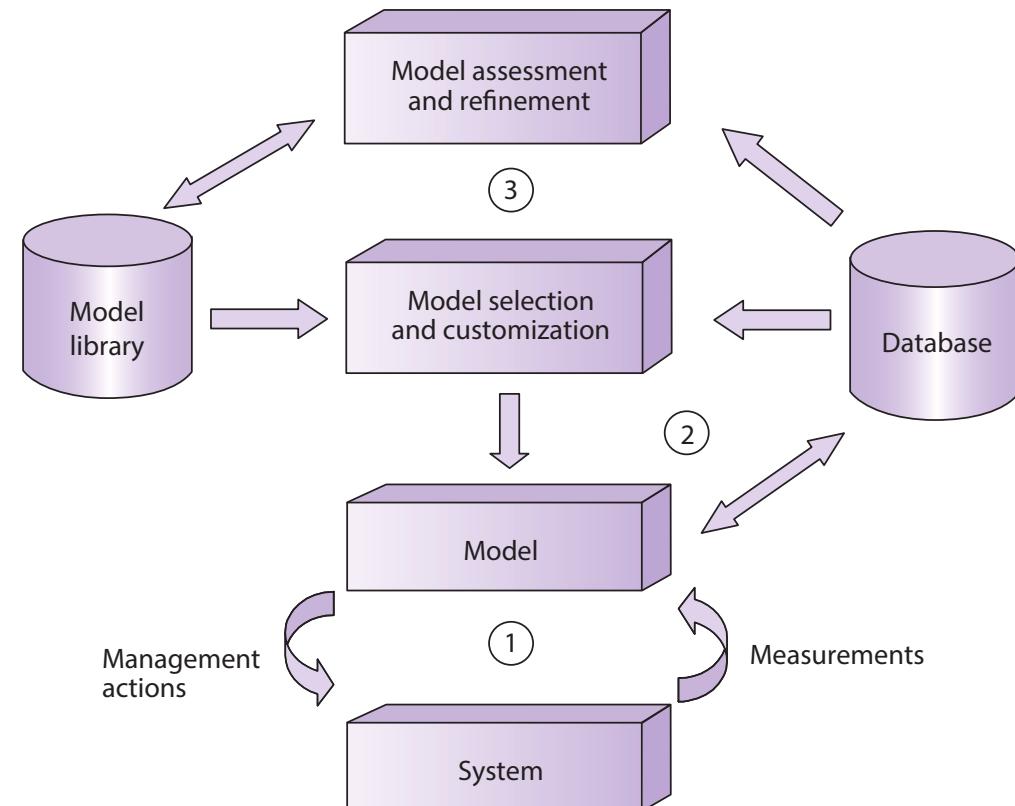
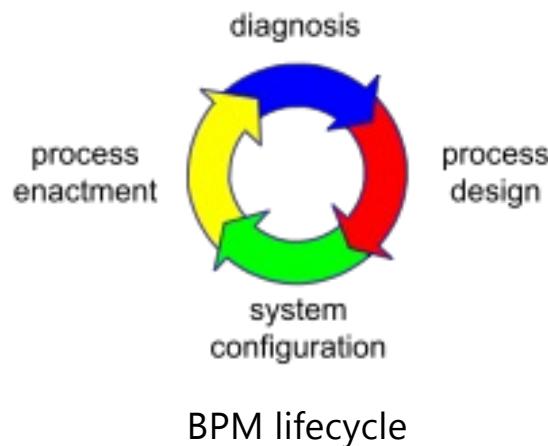


## "The 3-loop model" [Phaal, 1994]

1: Anvendelse

2: Udvælgelse & tilpasning

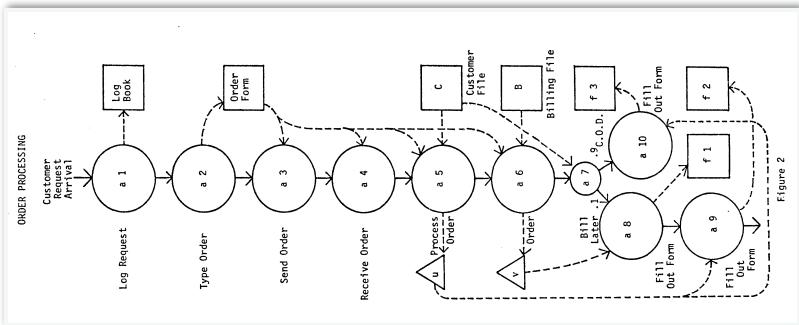
3: Design og & forfining



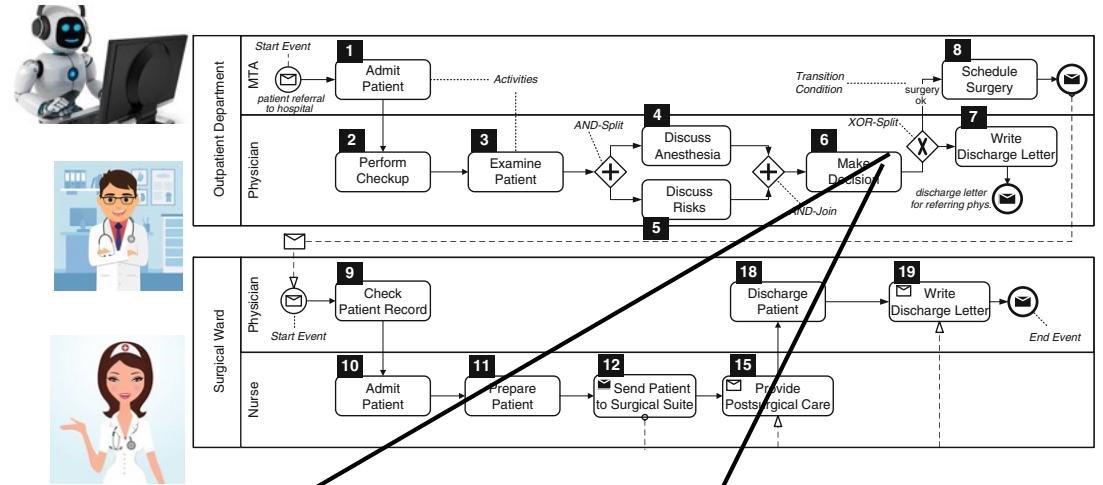
Kan måske lære af historik – måske endda andre hospitaler. Men pas på – det jo uperfekte modeller!

# Prosesautomatisering: En 50 år gammel drøm

## 70'erne: Office automation & flow grafer

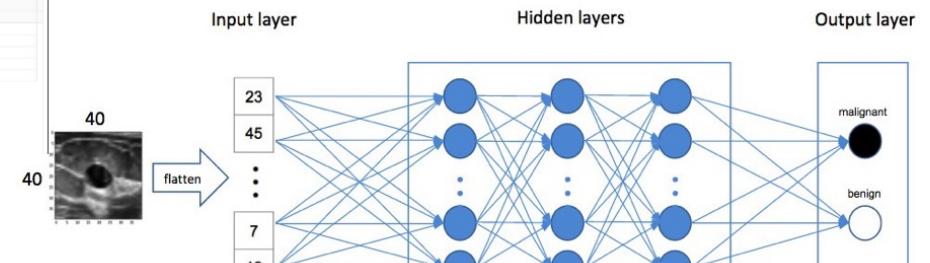


Nu: Robotic Process automation, chat bots & BPM



# Beslutningsregler

# Kunstig/intelligens (AI)

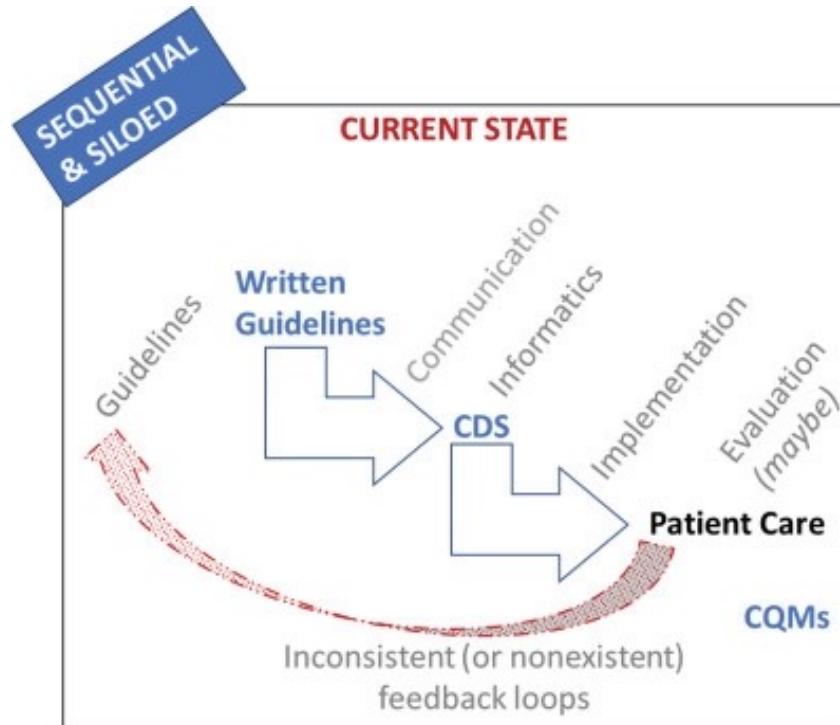


# Digitale Kliniske Vejledninger

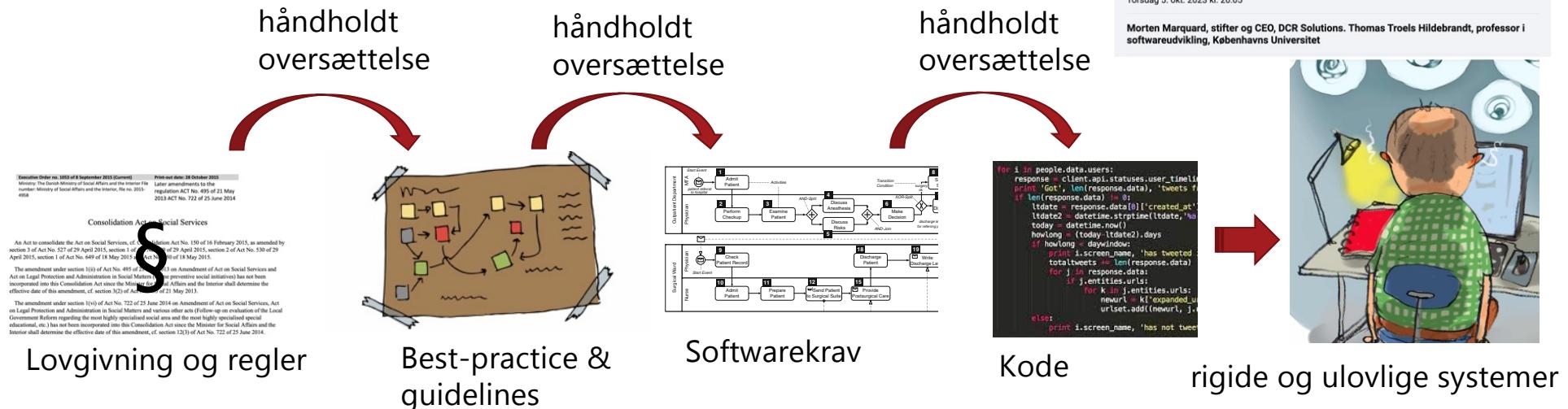
Adapting Clinical Guidelines for the Digital Age

## Adapting Clinical Guidelines for the Digital Age: Summary of a Holistic and Multidisciplinary Approach

Maria Michaels, MBA<sup>1</sup>



# Dyr og fejlbarlig digitalisering af arbejdsgange



Derfor kørte politiets kæmpe Polsag-projekt i sæk: "Ingen hos politiet kunne fortælle, hvorfor man skulle have et nyt system"

Politists Polsgag-projekt endte som en it-skandale, fordi politiet ikke engang kunne forklare egne arbejdssprocesser. Det fortæller en dansk professor, der har obduceret en række af danmarkshistoriens største it-skandaler.



Den sidste skandalsag i Skat kostede statskassen 12,3 milliarder. Men denne gang er der tale om langt flere penge, vurderer revisionsfirma og skattedeadvokat.

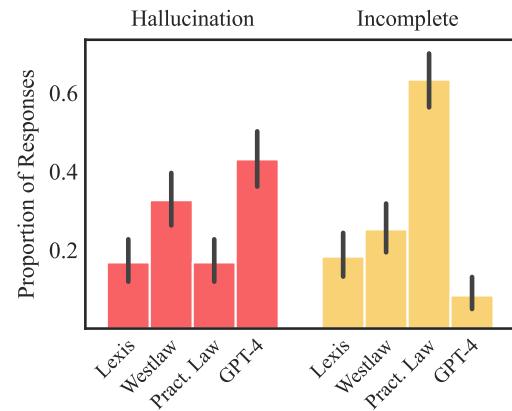
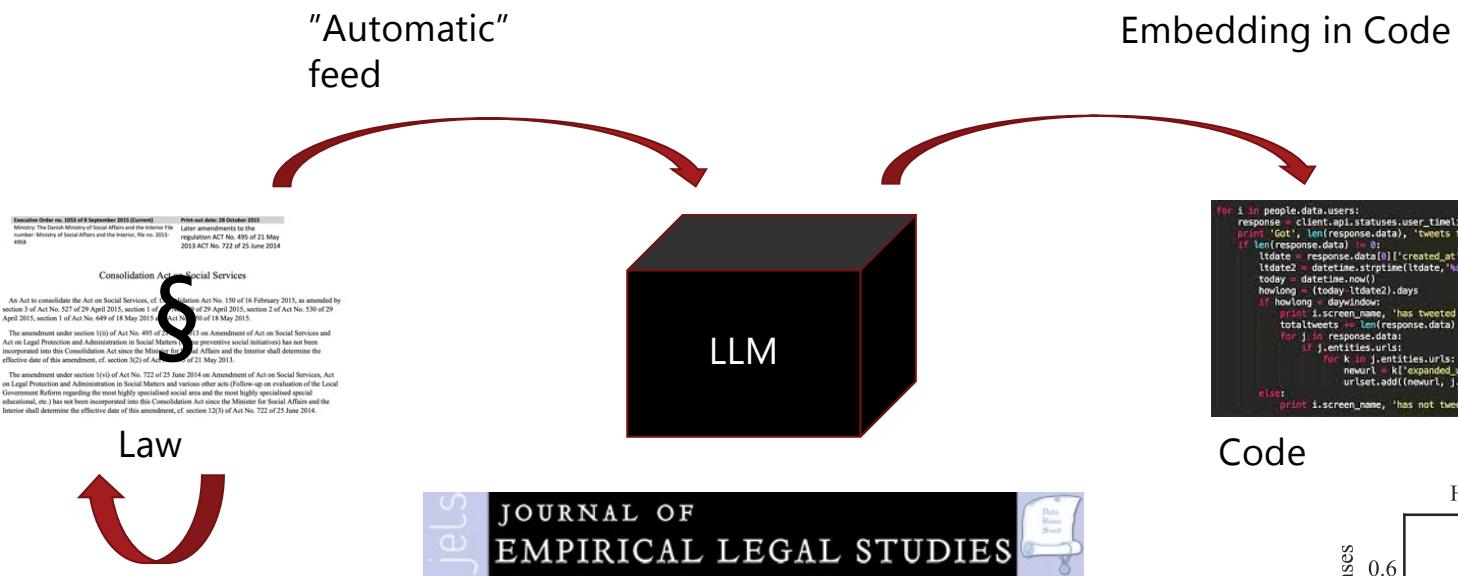
18. maj 2017 kl. 13.48

Det ene af to it-projekter i Landbrugsstyrelsen, der er i gang på grund af den nye EU-landbrugsreform er forsinkel og bliver 50 procent dyrere end antaget. Nu antyder ministeren, at der er risiko for, at det andet - og større - it-projekt i forbindelse med reformen også kan gå hen at blive forsinkel.

FOLKETINGETS  
OMBUDSMAN

Ombudsmanden: Bekymrende at borgere blev trukket i kontanthjælp på grund af mangler ved it-system

# Er Generativ AI og Retrieval Augmented Generation løsningen?

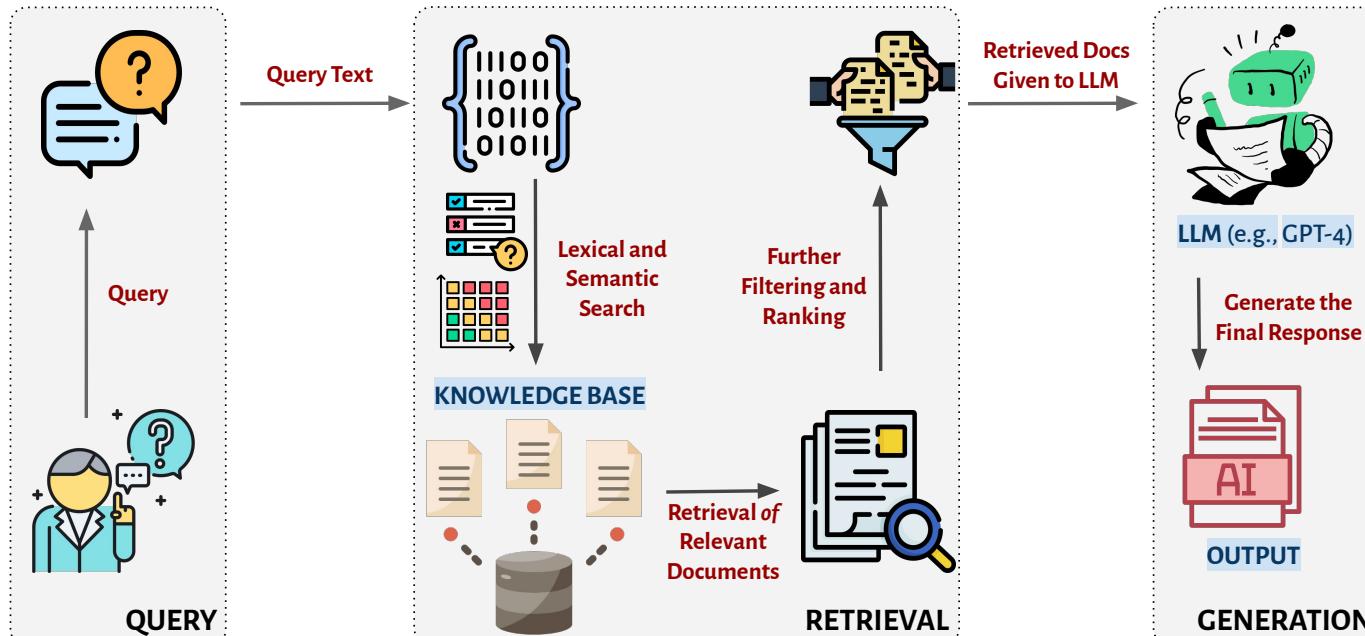


# Retrieval-Augmented Generation (RAG)

Hallucination-Free? Assessing the Reliability of Leading AI Legal Research Tools

Varun Magesh, Faiz Surani, Matthew Dahl, Mirac Suzgun, Christopher D. Manning, Daniel E. Hoenig, and Michael A. Smith

First published: 23 April 2025 | <https://doi.org/10.1111/jels.12413> | Citations: 6

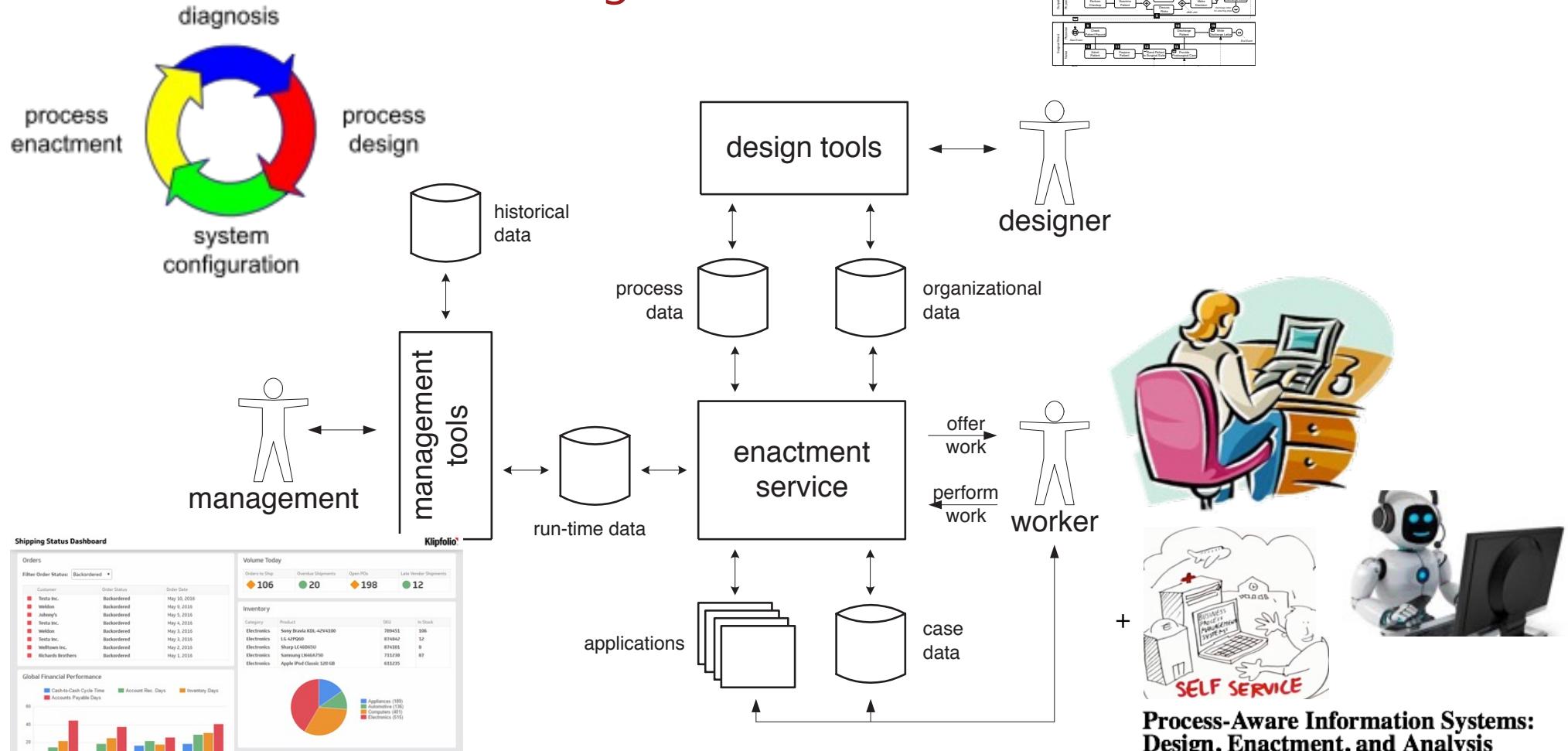


## Rigshospitalets chatbot besvarer

25. juni 2024

På sigt forventes der færre opkald og dermed en ressourcebesparelse. Dette har man dog ikke oplevet endnu, da mange ringer ind for at få valideret svar.

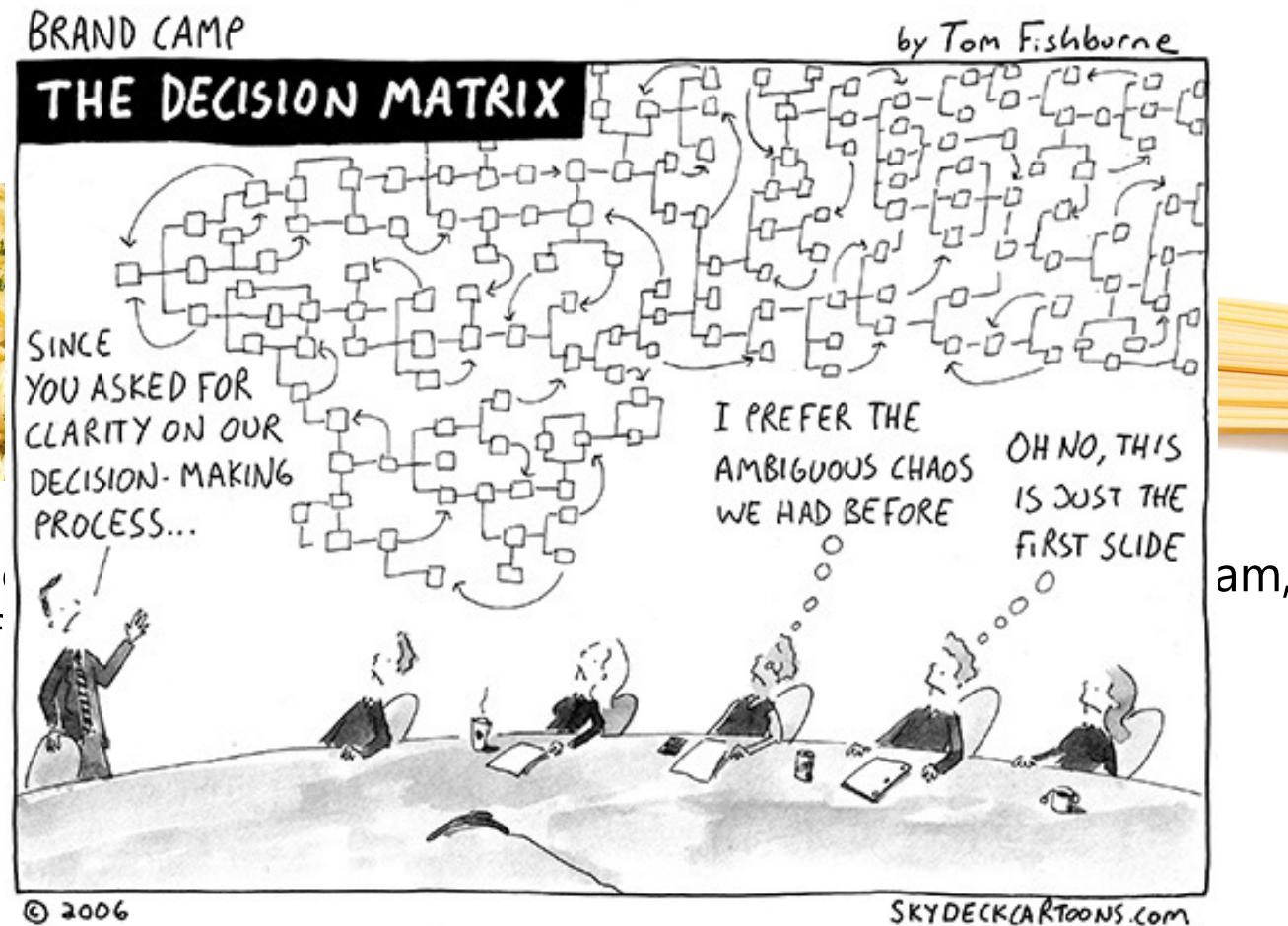
# Business Process Management arkitektur



## Rute-diagrammer er enten for komplekse eller for rigide



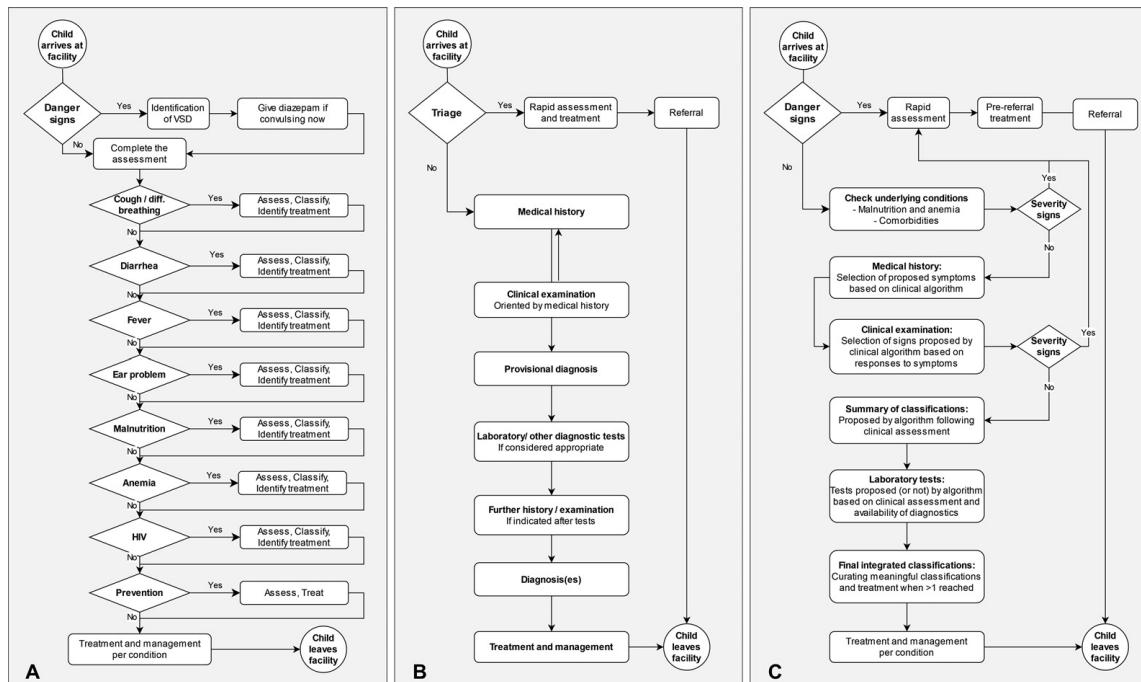
Stor variati  
spaghetti-f



am,

# Besværligt at lave varianter

**FIGURE 1.** Consultation Workflows: A. Representation of the WHO IMCI Chart Booklet workflow<sup>a,b</sup>; B. Generic clinical consultation workflow<sup>c</sup>; C. Hybrid workflow combining elements of the symptom-driven workflow (A) With natural consultation process (B)<sup>d</sup>



**GJSP** GLOBAL HEALTH: SCIENCE AND PRACTICE  
Dedicated to what works in global health programs  
OPEN ACCESS

TECHNICAL NOTE

## Digitalizing Clinical Guidelines: Experiences in the Development of Clinical Decision Support Algorithms for Management of Childhood Illness in Resource-Constrained Settings

Fenella Beynon,<sup>a,b</sup> Frédérique Guérin,<sup>c</sup> Riccardo Lampariello,<sup>d,e</sup> Torsten Schmitz,<sup>a,b</sup> Rainer Tan,<sup>a,b,f,g</sup> Natascha Ratanapravul,<sup>h</sup> Tigist Tamrat,<sup>i</sup> Karell G. Pellé,<sup>i</sup> Gaud Cathe,<sup>j,k</sup> Kristina Keitel,<sup>a,b,m</sup> Irene Masanja,<sup>g</sup> Clotilde Rambaud-Althaus<sup>n</sup>

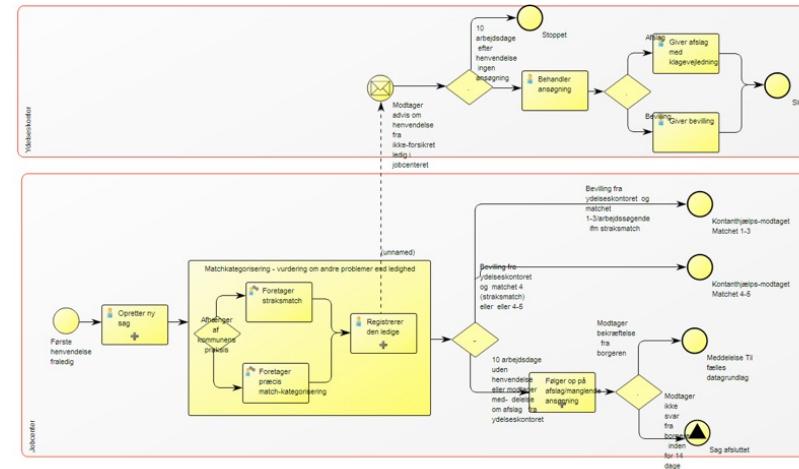
### BOX 1. The 5 Knowledge Layers of the World Health Organization SMART Guideline Framework<sup>19,21</sup>

1. **Narrative:** guideline and data recommendations
2. **Operational:** digital adaptation kits, comprised of semistructured documentation of operational and functional requirements
3. **Machine readable:** structured, software-neutral specifications, code, terminology, and interoperability standards
4. **Executable:** reference software, able to execute static algorithms and interoperable digital components and deliver operational and functional requirements
5. **Dynamic:** executable dynamic algorithms that are trained and optimized with advanced analytics to achieve prioritized outcomes

# Og det er svært at tjekke om de overholder loven

- Lov om Aktiv beskæftigelsesindsats  
**(LBK nr 1428 af 14/12/2009)**
- Lov om Aktiv socialpolitik  
**(LBK nr 946 af 01/10/2009)**
- Lov om Arbejdsløshedsforsikring  
**(LBK nr 574 af 27/05/2010)**
- **Lov om Integration af udlændinge**  
**(LBK nr 1062 af 20/08/2010)**
- **Lov om Sygedagpenge**  
**(LOV nr 563 af 09/06/2006)**
- Retssikkerhedsloven  
**(LBK nr 1054 af 07/09/2010)**
- Datagrundlag  
**(BEK nr 418 af 23/04/2010)**

Lovmedholdelig ?



Sammenhæng mellem regler, beslutningstabeller  
og ruter er kun i hovedet på designeren

# Og det er svært at tjekke om de overholder loven

- Lov om Aktiv beskæftigelsesindsats

(LBK nr 1428 af 14/12/2009)

- Lov om Aktiv socialpolitik

(LBK nr 946 af 01/10/2010)

- Lov om Arbejdsløsighedsstatistikken

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- Retssikkerhedsloven

(LBK nr 1054 af 07/07/2013)

- Datagrundlag

(BEK nr 418 af 23/04/2010)

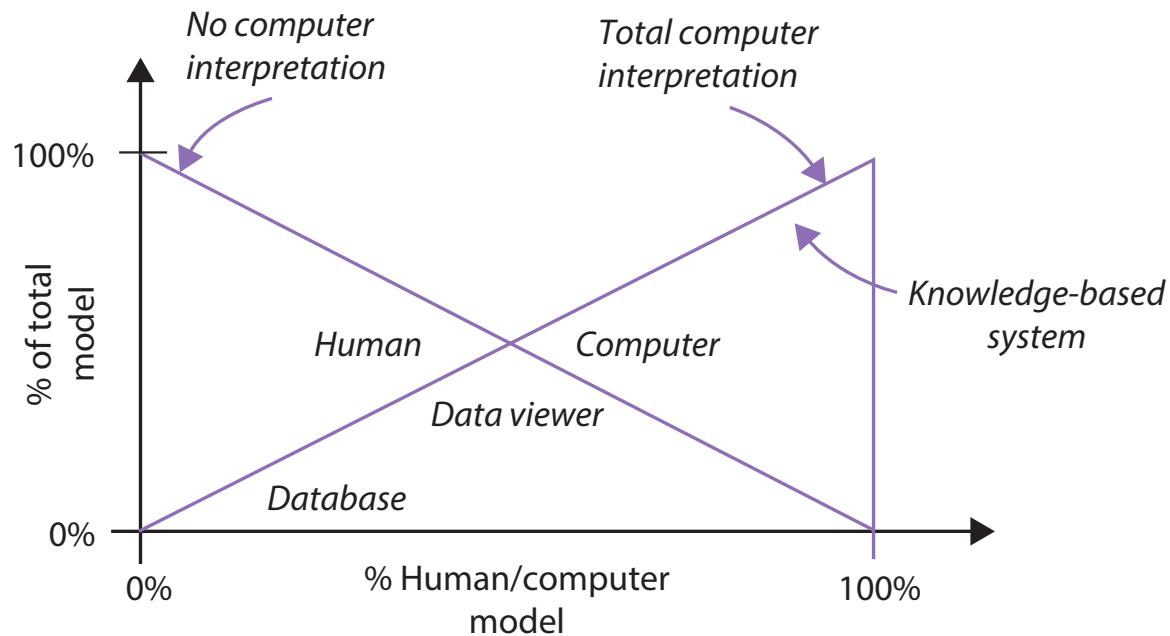
Læs mere om arbejdsgangene

## Opdateres ikke længere

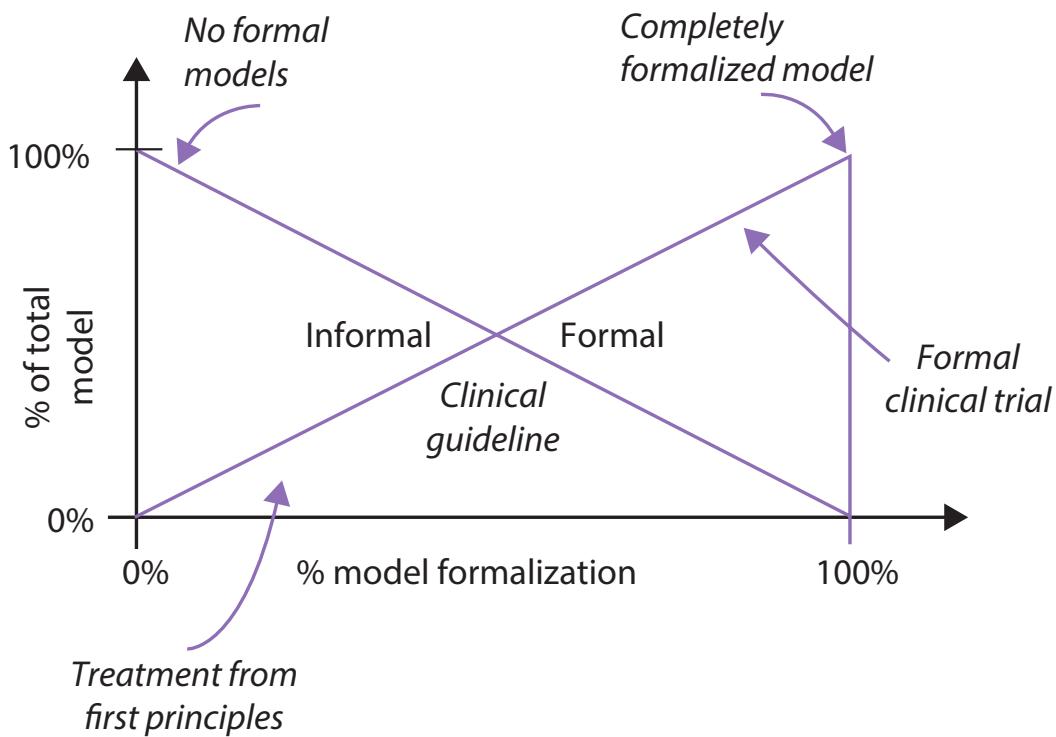
Fra d. 1. januar 2013 er Arbejdsgangsbanken ikke længere ajourført i forhold til ny lovgivning. Det betyder, at der siden 1. januar 2013 ikke er sket opdateringer og vedligeholdelse af eksisterende arbejdsgange eller udviklet nye arbejdsgange. Arbejdsgangene er dog fortsat anvendelige som inspiration, når nye arbejdsgange skal beskrives eller opdateres.

Sammenhæng mellem regler, beslutningstabeller og ruter er kun i hovedet på designeren

# Formelle og uformelle informationssystemer



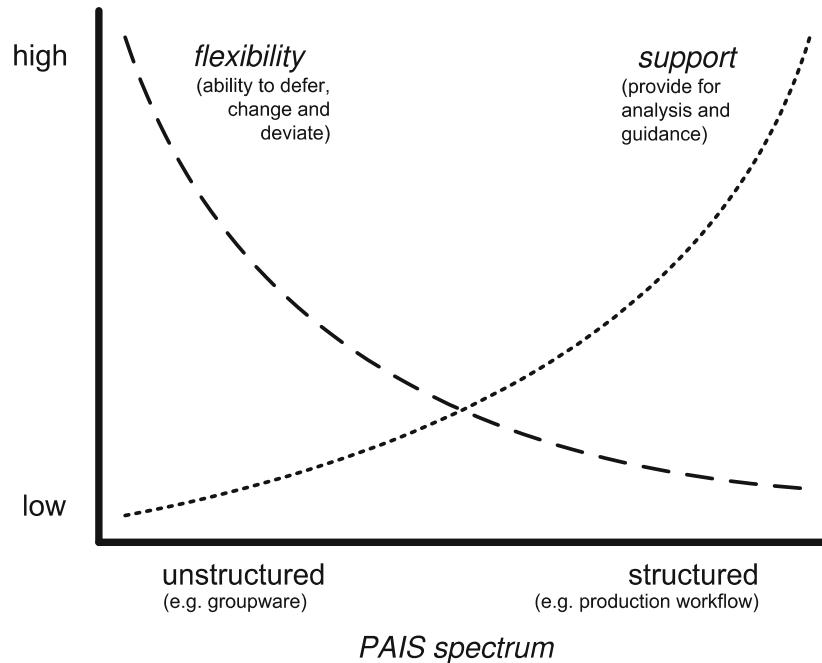
## Formelle modeller vs ingen formel model ?



# Fleksibilitet vs support

## Declarative workflows: Balancing between flexibility and support

W. M. P. van der Aalst · M. Pesic · H. Schonenberg



**Fig. 1** Today's PAIS spectrum: Systems offer support or flexibility but not both

# Forskellige former for fleksibilitet

Faser i proces-aware informationssystem:

- *Design time.* At design time a generic process model is created. This model cannot be enacted because it is not connected to some organizational setting.
- *Configuration time.* At configuration time a generic model is made more specific and connected to some organizational context which allows it to be instantiated.
- *Instantiation time.* At instantiation time a process instance is created to handle a particular case (e.g., a customer order or travel request).
- *Run time.* At run time the process instance is executed according to the configured model. The different activities are being enacted as specified.
- *Auditing time.* At auditing time the process instance has completed, however, its audit trail is still available and can be inspected and analyzed.

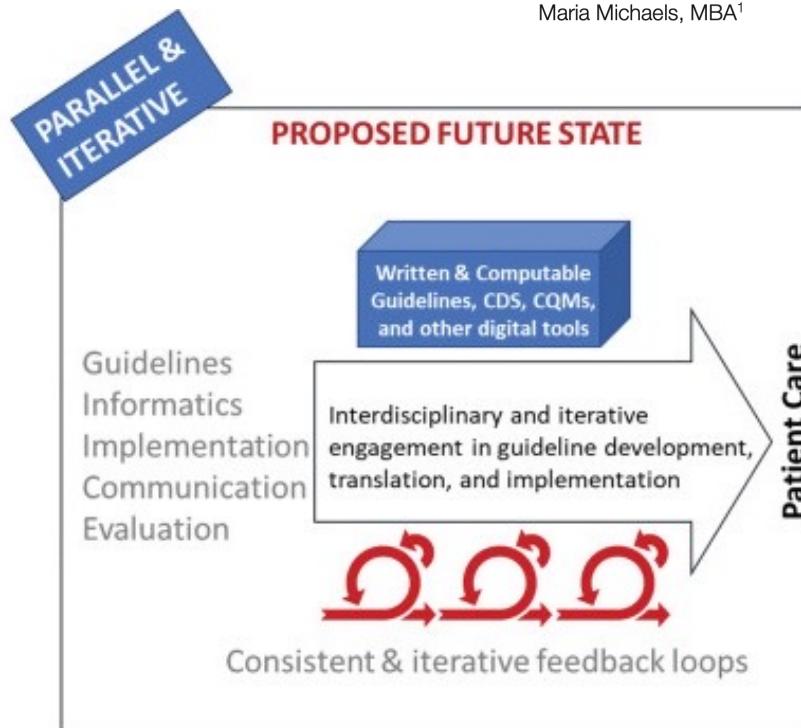
	defer (decide to decide later)	change (decide to change model)	deviate (decide to ignore model)
design time	e.g., defer to run-time by using late binding or declarative modeling	N/A	N/A
configuration time	e.g., defer configuration decisions	e.g., remodel parts of the process at configuration time	e.g., violate a configuration constraint
instantiation time	e.g., defer the selection of parameters or process fragments	e.g., modify model for a particular customer	N/A
run time	N/A	e.g., change model for running instance or migrate instance to new model	e.g., skip or redo a task while this is not specified
auditing time	N/A	N/A	N/A

# Samskabte digitale vejledninger

Adapting Clinical Guidelines for the Digital Age

## Adapting Clinical Guidelines for the Digital Age: Summary of a Holistic and Multidisciplinary Approach

Maria Michaels, MBA<sup>1</sup>



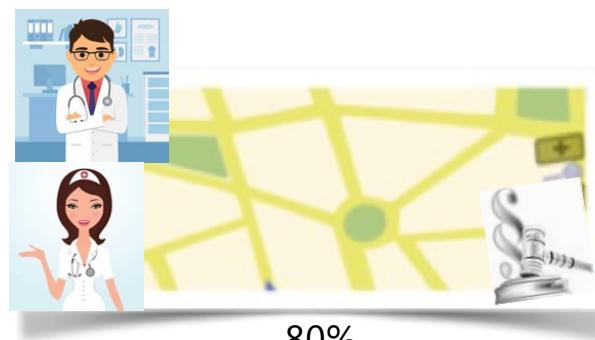
# Fra fokus på *automatisering* af standard-rutiner til at støtte vidensarbejdere i at *navigere* i regler og lovgivning

Rutinearbejde  
Klassisk automatisering (BPM & RPA)



5% ← Ensartet rutine og hyppigt gentaget og stabile regler

Vidensarbejde  
Adaptiv sagsbehandling (ACM)



80% → Kompleks og foranderlig

Vidensudvikling  
Adaptiv governance & AI



15% → Ukendt og foranderlig



Behov for up-to-date & intelligent vejfinder til lovgivningen!

# Bruger-drevet, it-støttet & gennemsigtig no-code digitalisering

it-støttet  
oversættelse

Receiving a notification

Consolidation Act on Social Services

An Act to consolidate the Act on Social Services, etc. (Consolidation Act No. 190 of 16 February 2015, as amended by section 3 of Act No. 577 of 20 April 2015, section 1 of Act No. 578 of 29 April 2015, section 2 of Act No. 579 of 29 April 2015, section 1 of Act No. 449 of 18 May 2015, etc.)

The amendment under section 1(i) of Act No. 495 of 29 June 2014 on Amendment of Act on Social Services and Act on Legal Protection and Administration in Social Matters (to prevent social initiatives) has not been incorporated into this Consolidation Act since the Minister for Social Affairs and the Interior shall determine the effective date of this amendment, cf. section 3(2) of Act No. 495 of 21 May 2013.

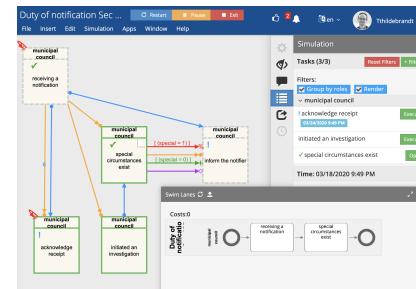
The amendment under section 1(iv) of Act No. 722 of 25 June 2014 on Amendment of Act on Social Services, Act on Legal Protection and Administration in Social Matters and various other acts (Follow-up on evaluation of the Local Government Act) has not been incorporated into this Consolidation Act since the Minister for Social Affairs and the Interior shall determine the effective date of this amendment, cf. section 3(2) of Act No. 722 of 25 June 2014.

Lovgivning og regler

Highlighter

Filter  
A receiving a...  
A acknowledge...  
A special circu...  
A inform the...  
A initiated an...  
B municipal co...  
Re Within six (6)

it-støttet  
oversættelse

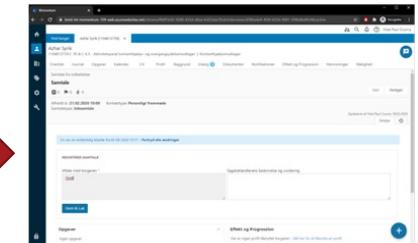


Vidensgraf og simulering  
(white box)

Drevet af fageksperter



Opmærkning af tekst



Forudsigelige, fleksible  
& forandringsparate  
systemer  
(som f.eks. WorkZone)

DCR metoden!

# Hvad er DCR Metoden ?

Aktiviteter, hændelser og roller  
(Hvem gør hvad?)

Regler og mål  
(Hvorfor og hvornår?)

Scenarier  
(Eksempler på hvordan? )

## Aktiviteter og roller kan noteres på post-it

Aktiviteter, hændelser og roller  
(Hvem gør hvad?)

Regler og mål  
(Hvorfor og hvornår?)



Scenarier  
(Eksempler på hvordan? )

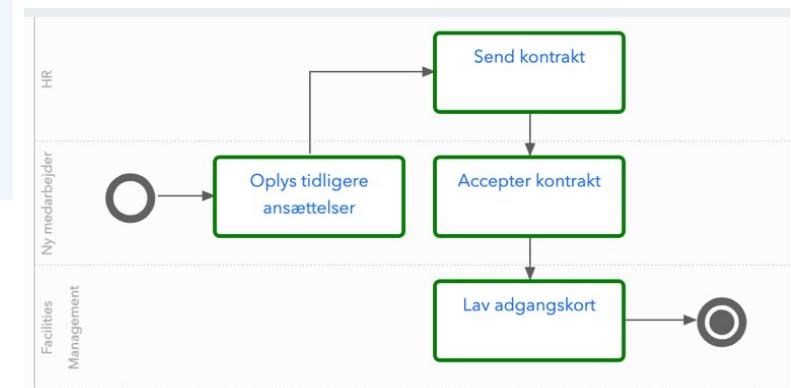
## Scenarier kan tegnes som flow i et svømmebanediagram

Aktiviteter, hændelser og roller  
(Hvem gør hvad?)

Regler og mål  
(Hvorfor og hvornår?)

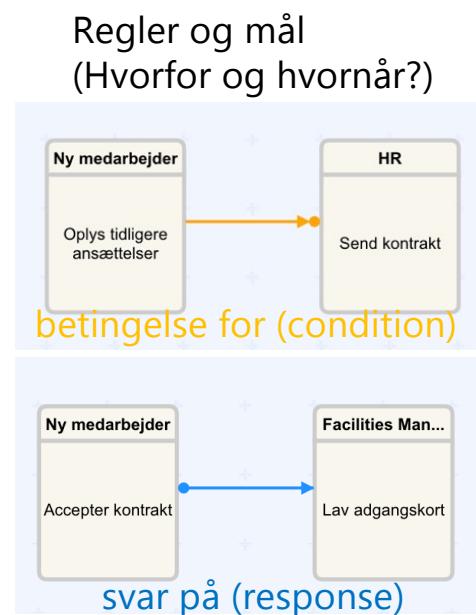


Scenarier  
(Eksempler på hvordan? )

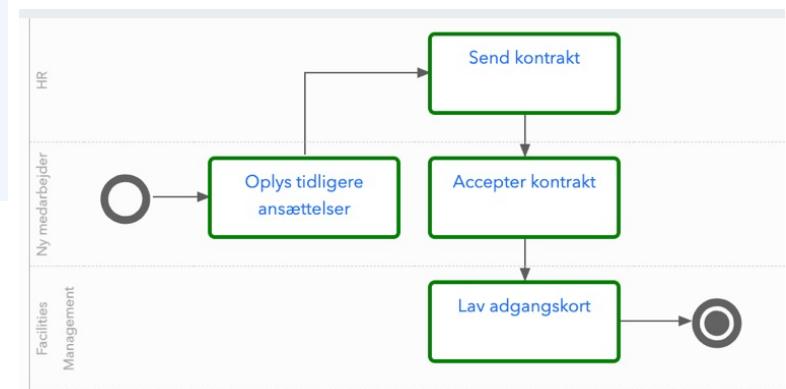


# Regler beskrives som betingelser (conditions) og svar (responses)

Aktiviteter, hændelser og roller  
(Hvem gør hvad?)



Scenarier  
(Eksempler på hvordan? )



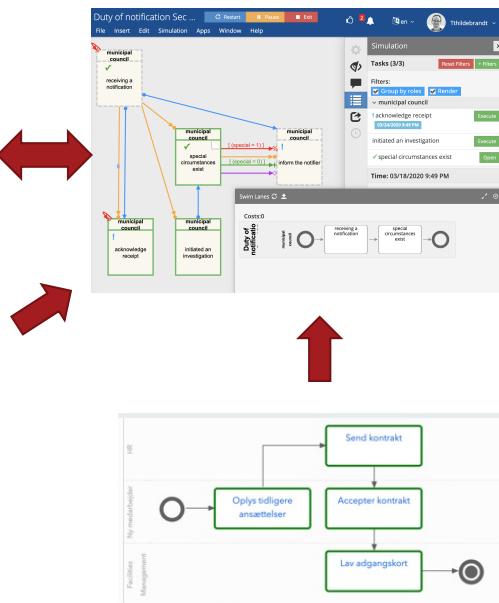
# Understøttet af designværktøjer (DCRSolutions.net) og Enterprise Information Systems (Workzone, DCR Flow)

Opmærkning af regler, aktiviteter, hændelser og roller i tekst

The screenshot shows a web-based application titled "DCR Rules Assistant". It features a sidebar with a "Highlighter" section containing a list of rule types such as "receiving a...", "acknowledge...", "special circu...", etc., and a search bar for "Within six (6)". The main area displays a text document with several red annotations. One annotation highlights the word "notification" in a blue box. Another annotation highlights the phrase "Within six (6) business days" in a blue box. A large black "S" is drawn over the entire text block. Red arrows point from the "Highlighter" sidebar to the annotated text and from the annotated text back to the "Highlighter" sidebar.

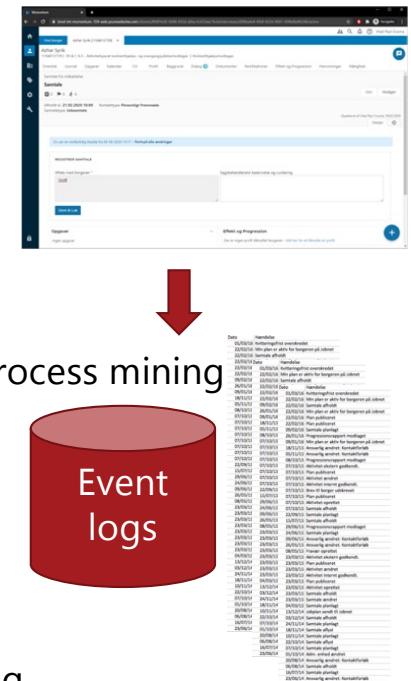
ChatGPT interaktiv UI

Visualisering af graf og simulering af proces



Flow-editor med regelvalidering

Understøttelse og automatisering af workflows



Process mining

## Mere end 50 kunder pt: (Mange via KMD WorkZone)



FAXE KOMMUNE



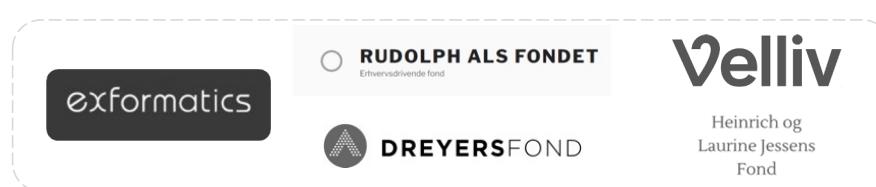
atp=



Færdselsstyrelsen



Ministeriet for Fødevarer,  
Landbrug og Fiskeri  
Fødevarestyrelsen



Skatteforvaltningen

SKATTE  
STYRELSEN

TOLD  
STYRELSEN

VURDERINGS  
STYRELSEN

GÆLDS  
STYRELSEN

MOTOR  
STYRELSEN

UDVIKLINGS OG  
FORENLINGS  
STYRELSEN

ADMINISTRATIONS  
OG SERVICE  
STYRELSEN

# Mapning af tekst til DCR vidensgraf

The screenshot shows the dcrgraphs.net interface for mapping text to a knowledge graph. The main area displays a text snippet with highlighted terms, and the left sidebar lists entities categorized by role and activity.

**Text Snippet:**

Den nye medarbejder skal oplyse tidligere ansættelser før HR sender en kontrakt. Hvis den nye medarbejder accepterer kontrakten skal Facilities Management lave et adgangskort.

**Left Sidebar (Entities):**

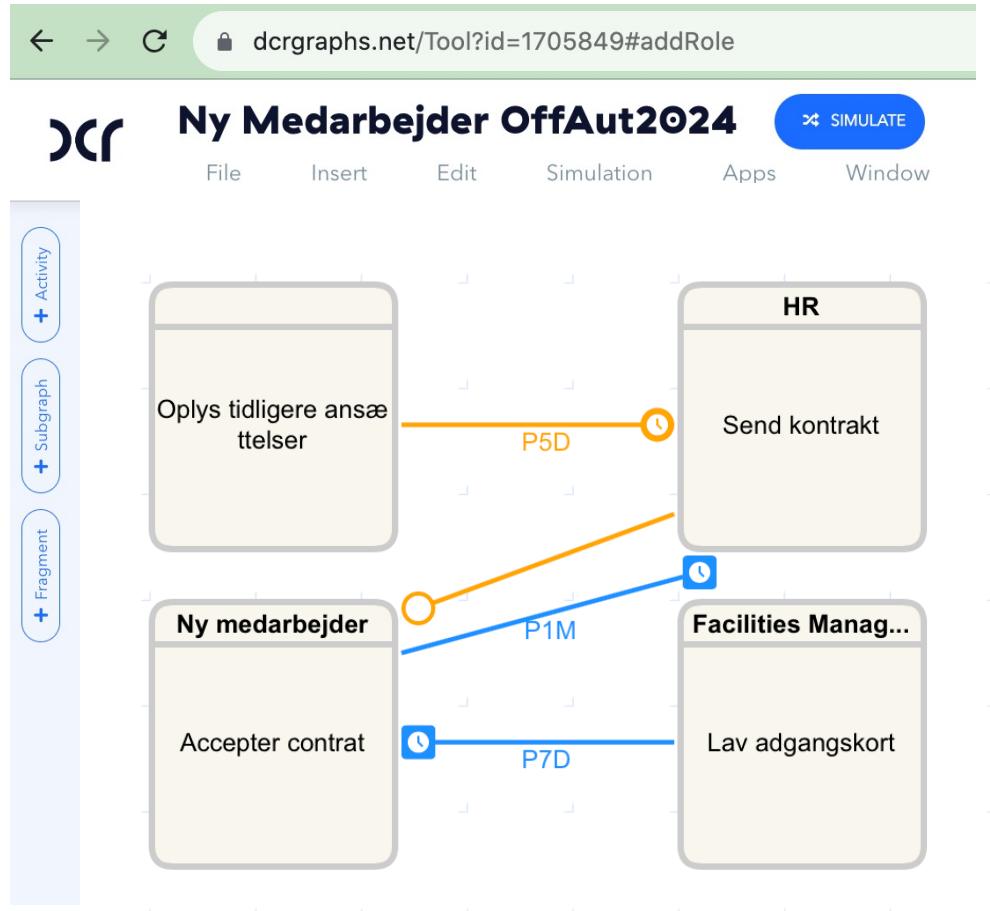
- Roles (3):**
  - HR
  - Ny medarbejder
  - Facilities Management
- Activities (4):**
  - Accepter kontrakt
  - Oplys tidligere ansættelser
  - Lav adgangskort
  - Send kontrakt
- rules (0)**

**Bottom Panel (New Entity Creation):**

**Roles (3)**

Enter title
✓ HR
Ny medarbejder

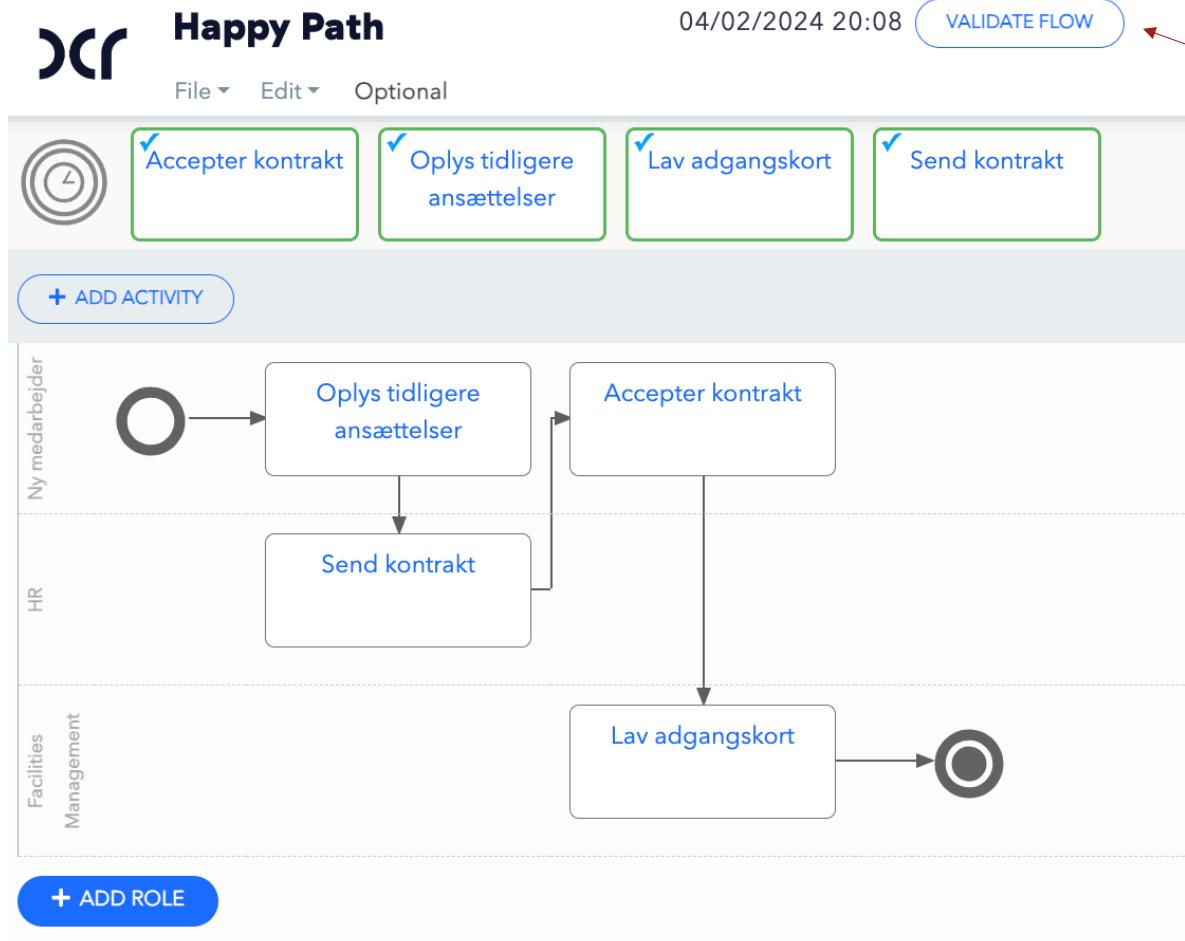
## DCR vidensgraf: Designer og simulator



Support for tid (datoer, delay & deadlines)

Obs: Ny notation i designer

# Design af scenarier



Validering af om flow opfylder regler

# ChatGPT interface til at lave modeller – men vær på vagt!

DCR Rules Assistant

**TH You**  
Før kontrakten kan sendes skal den nye medarbejder oplyse tidligere ansættelser

**DCR DCR Bot**  
Did you mean this?  
In order to do Oplys tidligere ansættelser HR must have completed Send kontrakt

**ADD PRE-CONDITION RULE TO GRAPH?**

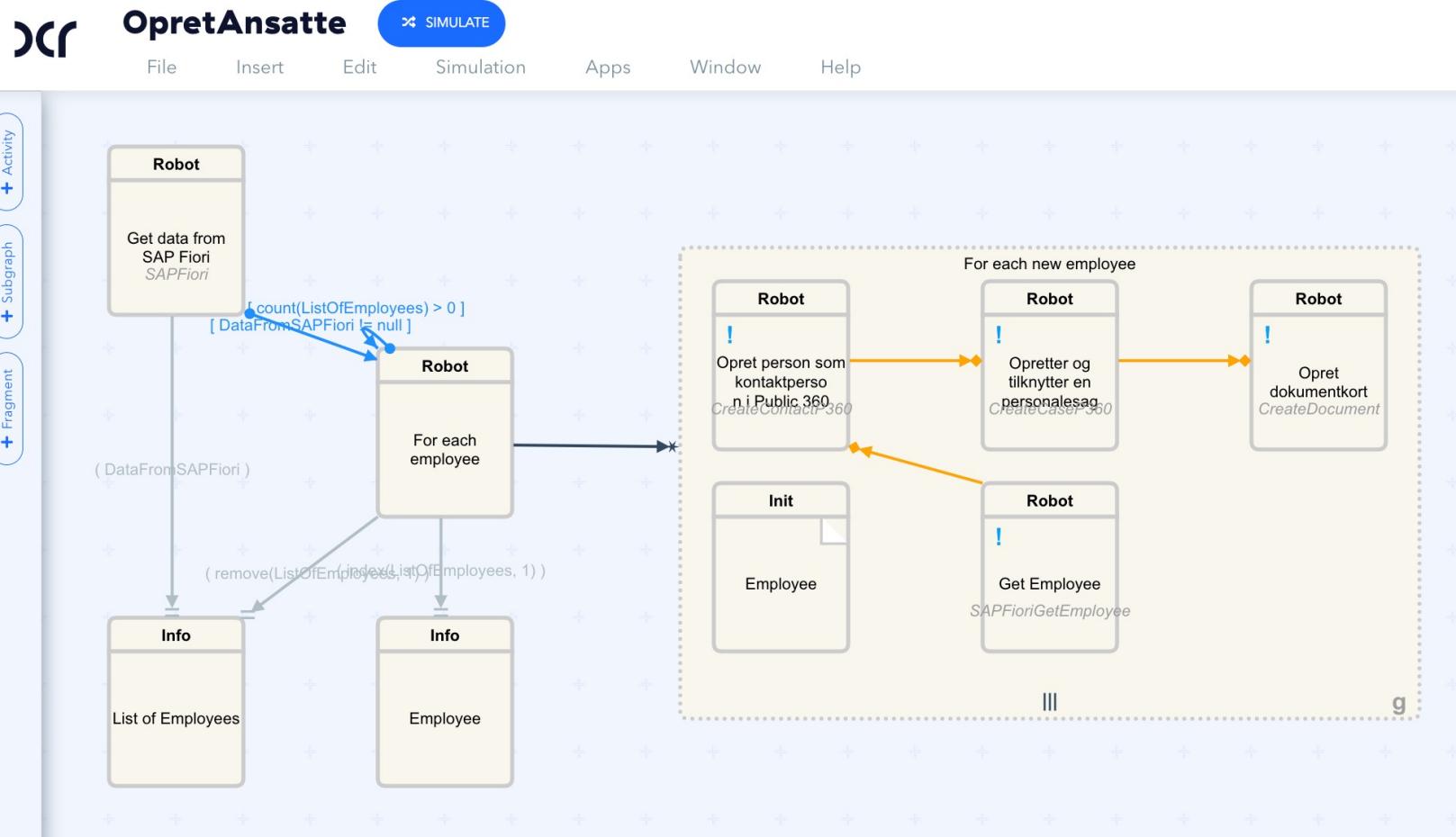
**TH You**  
Den nye medarbejder skal oplyse tidligere ansættelser før HR sender kontrakten

**DCR DCR Bot**  
Did you mean this?  
In order to do Send kontrakt Ny medarbejder must have completed Oplys tidligere ansættelser

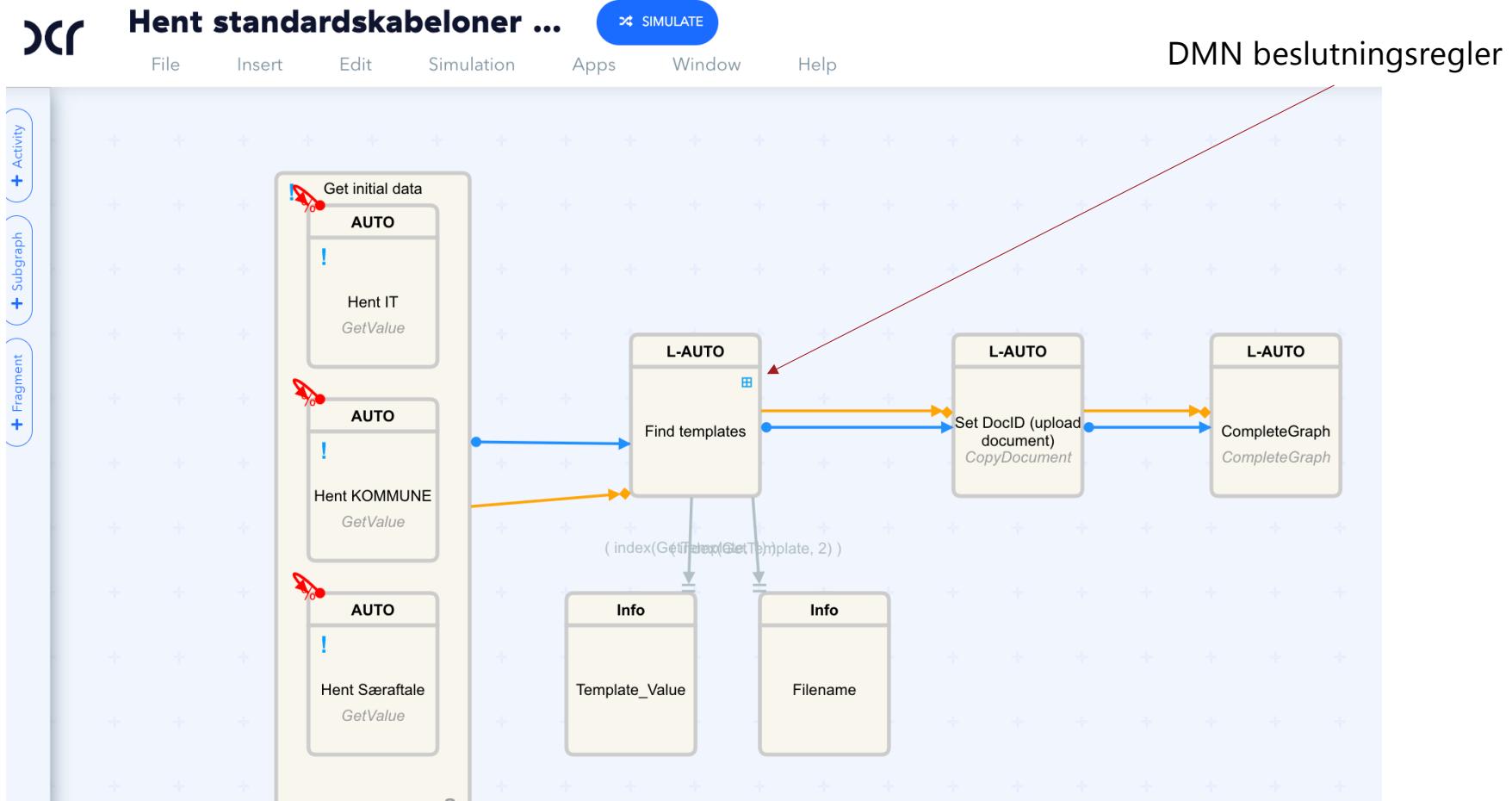
**Rule added to graph**

Explain in your words the rule you need

# Support for data og kald af eksterne services



# Support for beslutningsmodeller (DMN)



# Support for beslutningsmodeller (DMN)

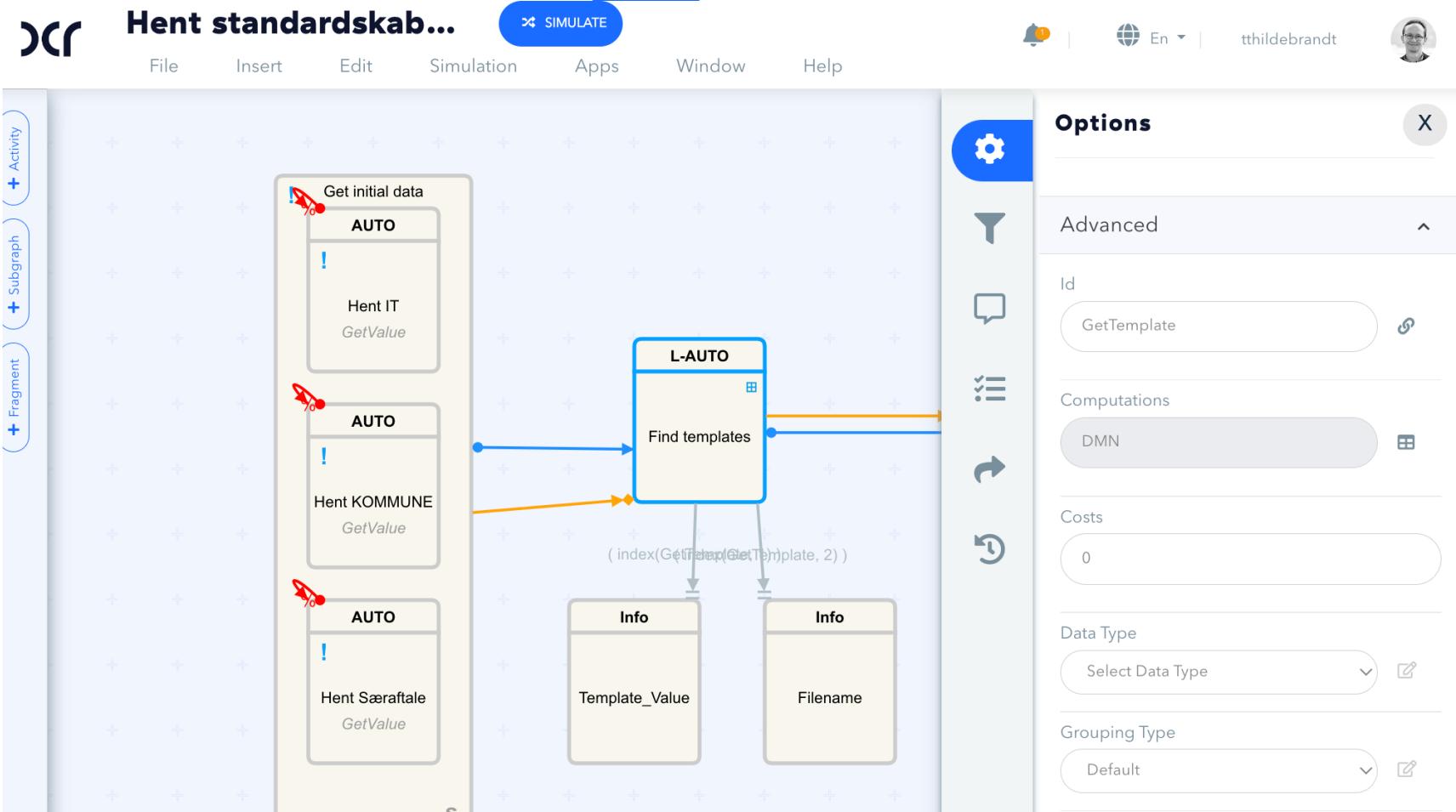
DMN Editor

	When IT_Value string	And Kommune_Value string	And SARKONTRAKT_Value string	Then GetTemplate string	And Filename string
1	"DSIV"	-	"JA"	"41087"	"Særaftale"
2	"SBKBH"	-	"JA"	"77"	"Særaftale"
3	"SBSPKBH"	-	"JA"	"78"	"Særaftale"
4	"SBTKBH"	-	"JA"	"79"	"Særaftale"
5	"§32.1.5"	-	-	"162915"	"Aftale"
+/-	-	-	-	-	-

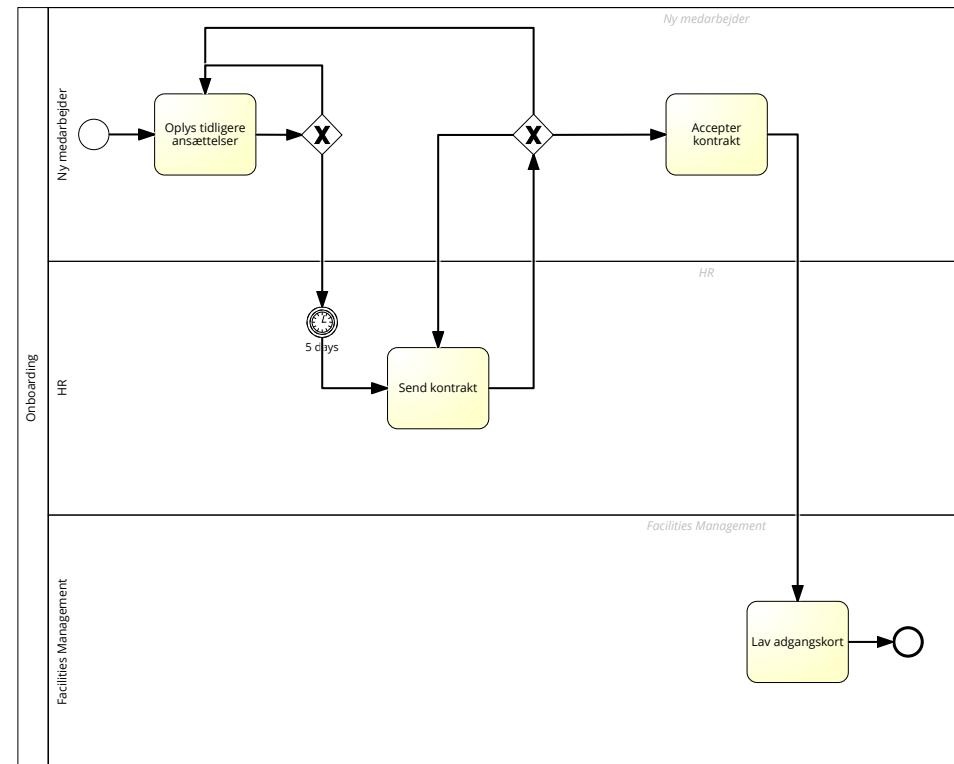
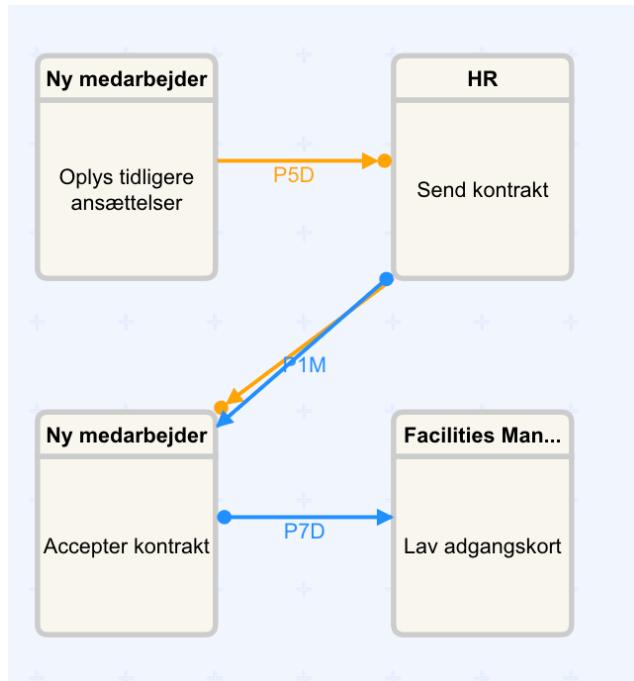
DOWNLOAD DMN DOWNLOAD EXCEL Vælg fil DER ER IKKE V...T NOGEN FIL VERIFY Remove DONE

Hent Særaftale  
GetValue Template\_Value Filename Grouping Type

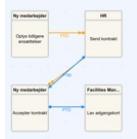
# Support for beslutningsmodeller (DMN)



## DCR vs traditionelle BPMN rutediagrammer



## DCR vs traditionelle BPMN rutediagrammer



Handling, Roller, Regler

Nemt at se hvilke regler der gælder

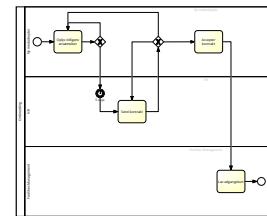
Sværere at se hvilke flows der er mulige

Værktøjer til at simulere og validere scenarier automatisk

Nemt at ændre regler, roller og aktiviteter

Fuld support for delay og deadlines

Fuld support for data og DMN



Handling, Roller, Flows

Svært at checke hvilke regler der gælder

Sværere at se hvilke flows der er mulige

Begrænset mulighed for at simulere og validere scenarier automatisk

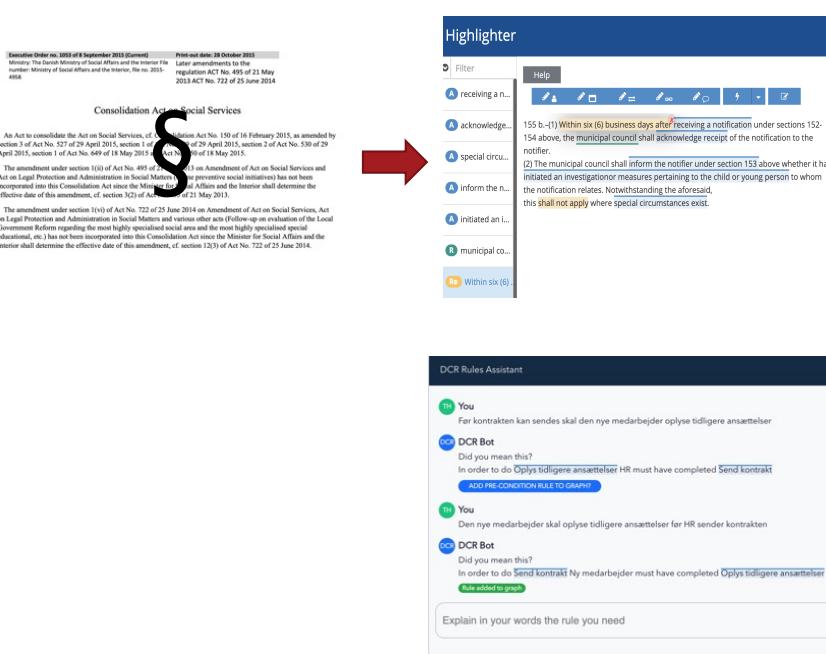
Sværere at ændre regler, roller og aktiviteter

Support for delay imellem sekventielle aktiviteter og nogle deadlines

Fuld support for DMN, begrænset support for data

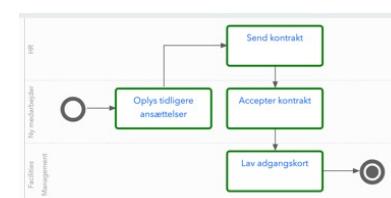
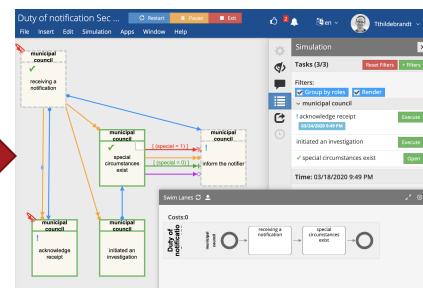
# Opsummering af DCR værktøjer

Opmærkning af regler,  
aktiviteter, hændelser og roller i tekst



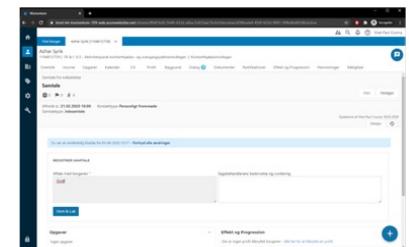
## ChatGPT interaktiv UI

## Visualisering af graf og simulering af proces



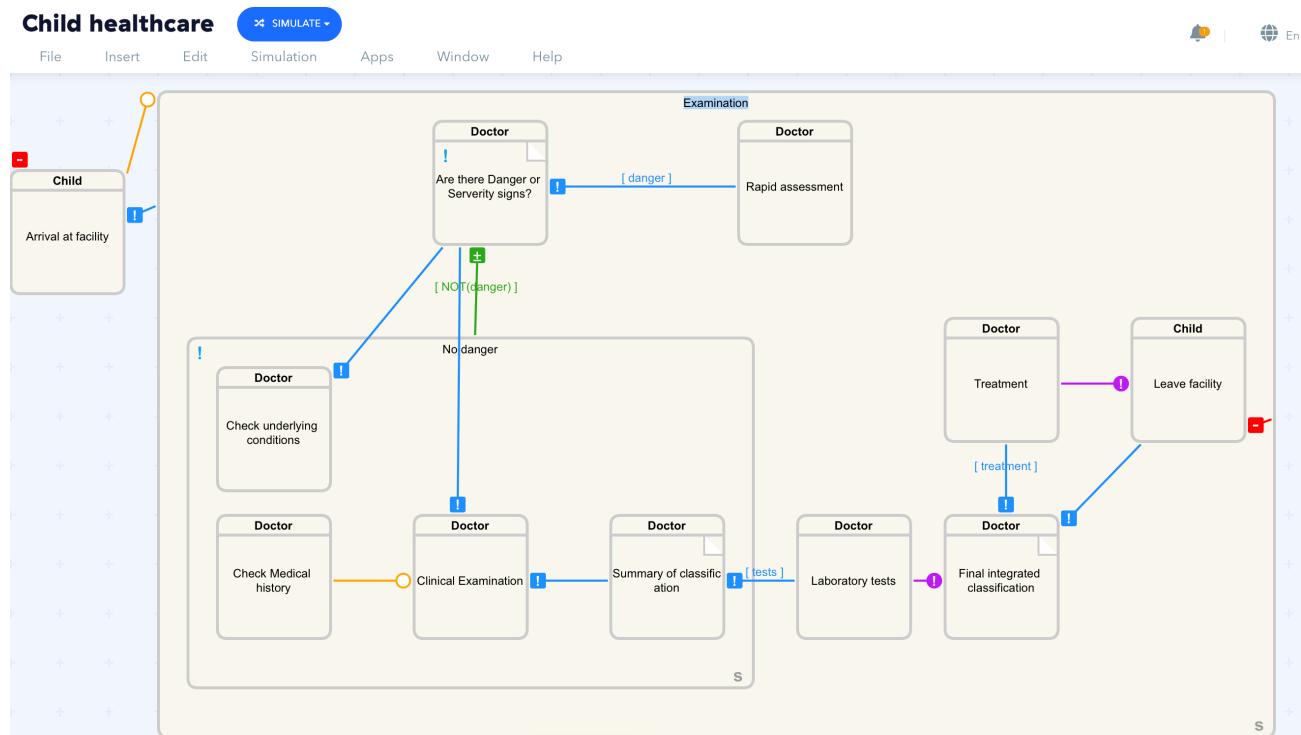
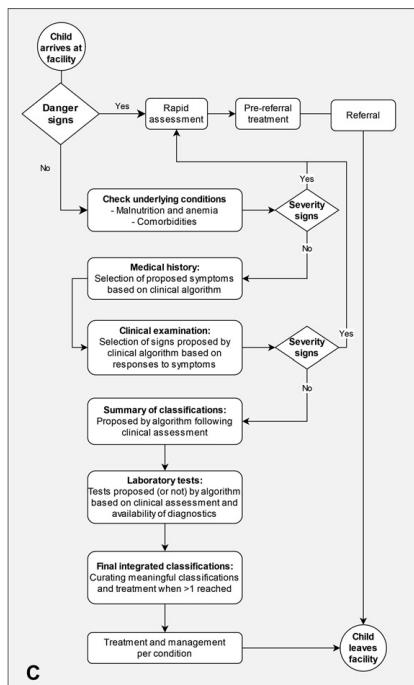
## Flow-editor med regelvalidering

# Understøttelse og automatisering af workflows



## Flere eksempler

# Undersøgelse af barn



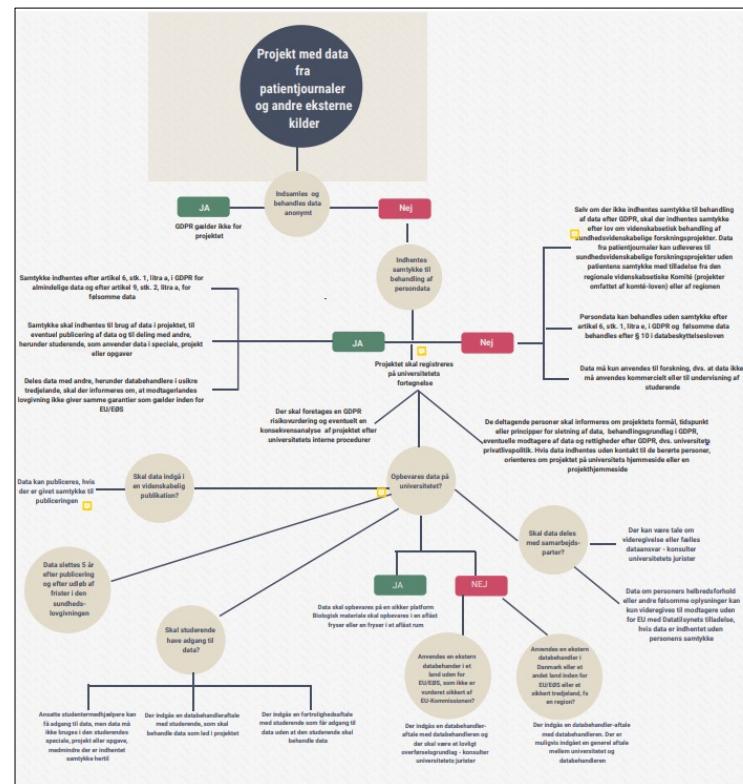
<https://www.dcrgraphs.net/Tool?id=2005903#>

Den gamle analog måde at håndtere guidelines

## Hav en rå tekst der beskriver reglerne

**CHAPTER II**  
**Principles**  
**Article 5 - Principles relating to processing of personal data**

1.  
Personal data shall be:
  - (a) processed lawfully, fairly and in a transparent manner in relation to the data subject ('lawfulness, fairness and transparency');
  - (b) collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes ('purpose limitation');
  - (c) adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed ('data minimisation');
  - (d) accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay ('accuracy');
  - (e) kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) subject to implementation of the appropriate technical and organisational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject ('storage limitation');
  - (f) processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures ('integrity and confidentiality').



# Den nye digitale måde at håndtere guidelines

...lav en digital, eksekverbar model af reglerne!

## Hav en rå tekst der beskriver reglerne

The screenshot shows a web-based application titled "GDPR Compliance process". The interface includes a navigation bar with "File", "Insert", "Edit", "Simulation", "Apps", "Window", and "Help". A "SIMULATE" button is also present. The main area displays a flowchart or process steps:

- A green box labeled "Welcome to GDPR".
- An orange box labeled "Consent is obtained for the processing of personal data".
- A grey box labeled "Data is stored at the university".
- A green box labeled "Result".

Below these boxes, a question is asked: "Do you collect and treat all data anonymously?". A dropdown menu shows "No".

The process continues with the following steps:

- Handle GDPR data
- Do you retrieve consent to handle personal data?

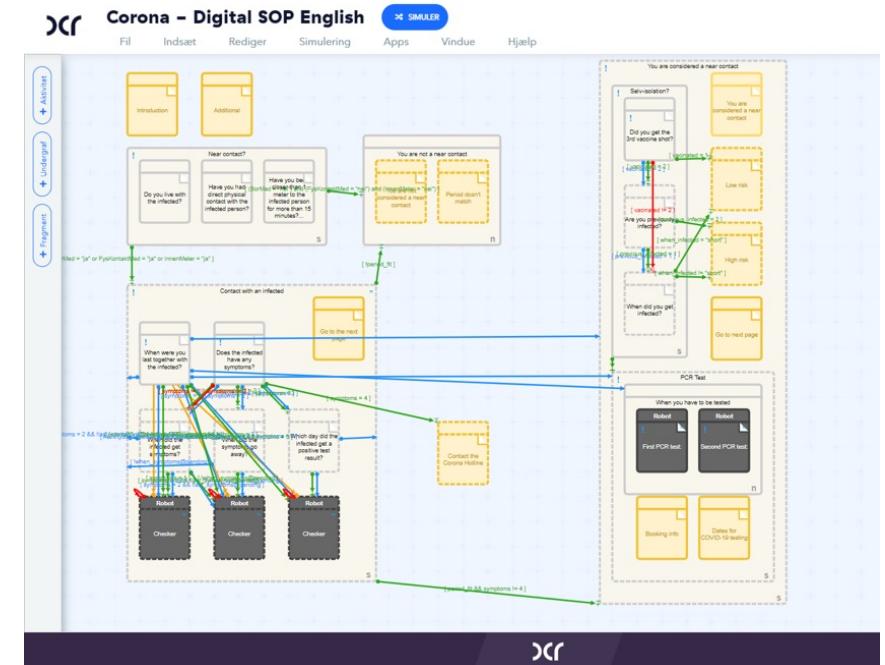
At the bottom left is a "Cancel" button, and at the bottom right is a "Next" button. The footer of the application says "Powered by DCR".

On the left side of the screen, there is a large text box containing the "CHAPTER II Principles Article 5 - Principles relating to processing" section of the GDPR, specifically Article 89(1). The text details the principles of data processing:

- Personal data shall be:
  - processed lawfully, fairly and in a transparent manner ('lawfulness, fairness and transparency');
  - collected for specified, explicit and legitimate purposes that is incompatible with those purposes; interest, scientific or historical research purposes or cultural purposes in the public interest, not be considered to be incompatible if Article 89(1), not be considered to be incompatible if Article 89(1) subject to implementation of the appropriate technical and organizational measures required by this Regulation in order to safeguard the rights and freedoms of the data subjects ('storage limitation');
  - adequate, relevant and limited to what is necessary for the purposes for which the personal data are processed ('data minimisation');
  - accurate and, where necessary, kept up to date. Every reasonable step must be taken to ensure that personal data that are inaccurate, are erased or rectified without delay;
  - kept in a form which permits identification of the data subjects for no longer than is necessary for the purposes for which the personal data are processed insofar as the personal data will be processed for statistical purposes, scientific research purposes or historical research purposes in the public interest, subject to implementation of the appropriate technical and organizational measures required by this Regulation in order to safeguard the rights and freedoms of the data subjects ('storage limitation');
  - processed in a manner that ensures appropriate protection against unauthorised or unlawful processing and against accidental loss or damage, using appropriate technical and organisational measures ('confidentiality').



## **11 page guidance, with 14 updates**



# Digital business process

DCR Decision Models

dcr-bifrost.azurewebsites.net/sop/1017805

## DCR SOP

### Corona - Nærkontakt SOP

Start Kontakt med smittet Konklusion

Next

**Få svar på om du er nærkontakt og hvad du skal gøre**

Ved at besvare spørgsmålene kan du finde ud af om du er nær kontakt, om du skal gå i selvisolation og hvornår du skal tage PCR test.

Bor du sammen med den smittede?

Har du haft direkte fysisk kontakt med den smittede?

Har du været tættere end en 1 meter på den smittede i mere end 15 minutter?

**OBS:** Hvis du er omfattet af særlige omstændigheder bør du læse disse retningslinjer:

- Særlige retningslinjer for børn.
- Særlige retningslinjer for personale der arbejder i sundhedssektoren og med ældre.

# Men hvad hvis vi spørger ChatGPT?



MO

Hi,

I live with a friend that has corona. What should I do?



If you are living with a friend who has COVID-19, it is important that you take precautions to reduce your risk of getting infected and spreading the virus to others. Here are some steps you can take:

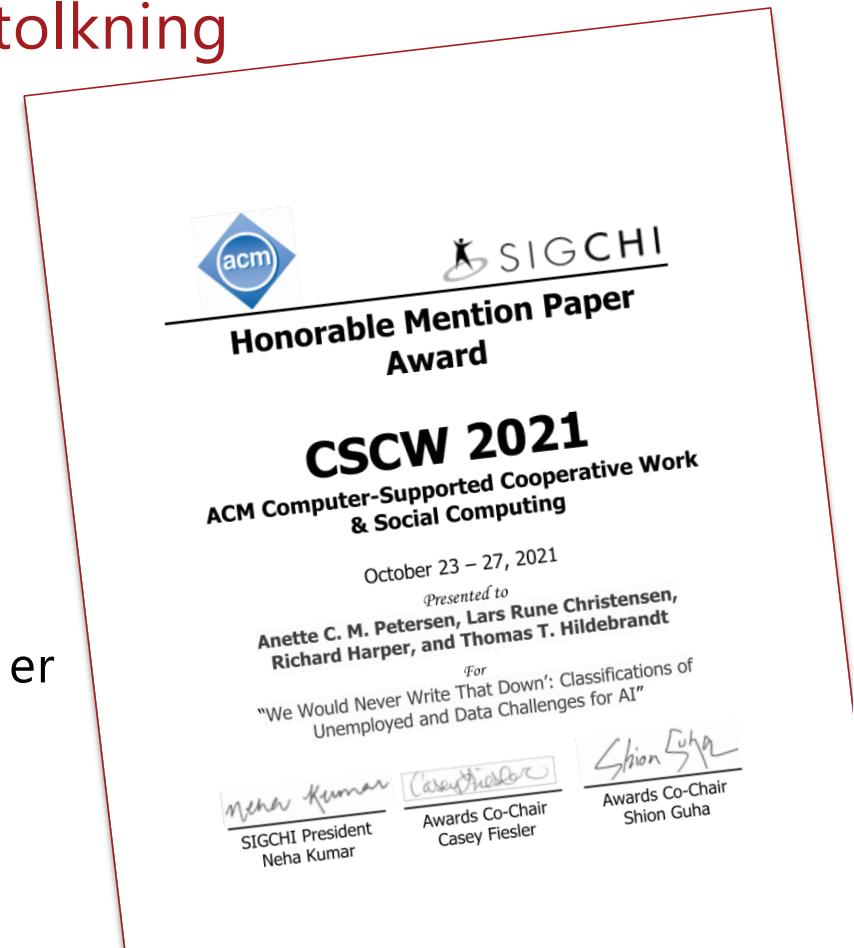
1. Stay at home and avoid contact with others: If possible, try to stay in a separate room or area of the house away from your friend, and avoid contact with them as much as possible.
2. Wear a mask: When you are around your friend, wear a mask that covers your mouth and nose to help reduce the risk of airborne transmission.
3. Practice good hygiene: Wash your hands frequently with soap and water for at least 20 seconds, especially after touching any surfaces that your friend has touched. Avoid touching your face, especially your mouth, nose, and eyes.
4. Clean and disinfect frequently touched surfaces: Use a disinfectant cleaner to wipe down surfaces that your friend has touched, such as doorknobs, light switches, countertops, and handles.
5. Monitor your symptoms: Watch for symptoms of COVID-19, such as fever, cough, and difficulty breathing. If you develop symptoms, contact a healthcare provider for advice on getting tested.
6. Consider getting vaccinated: If you have not already been vaccinated, consider getting vaccinated as soon as possible. Vaccines have been shown to be highly effective in preventing COVID-19 and reducing the risk of severe illness and hospitalization.

If your friend's symptoms worsen or they require medical attention, encourage them to seek medical care and follow the guidance of healthcare providers. Stay safe and take all necessary precautions to protect yourself and others.

## Ikke alle data er (eller behøver at skulle struktureres og gøres) tilgængelige for digital fortolkning

- Journal-noter
- Telefonopkald
- Diktafon-optagelser

Der er teknologier (AI) der kan gøre dem tilgængelige for digital fortolkning – men det er ikke nødvendigvis ønskeligt (eller modent)

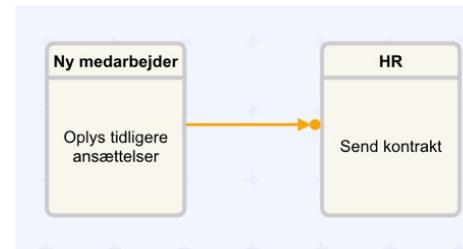


## Chapter summary

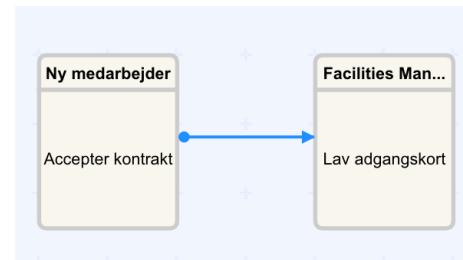
1. An information system is developed to manage a set of activities, and its function can be characterized as repeated cycles of modelling, measurement and management.
2. There are three separate information loops. Loop 1 defines the direct application of a model to a task. Loop 2 defines the way models are selected and are customized. Loop 3 is responsible for model creation and refinement based upon the results of application over time.
3. There are considerable advantages to structuring information processes, including improved reliability, efficiency and consistency. There are also costs associated with formalization, including lack of flexibility to accommodate varying circumstances and the effort involved in defining the system.
4. Not all data need to be available for computer interpretation. A trade-off exists between creating explicit models that permit formal information systems to be created and leaving the system in an informal state, with minimally defined models and data.
5. A formal information system contains an agreed model for the interpretation of data, and data within the system are structured in accordance with that model.
6. An informal information system is neutral to the interpretation of data, contains no model and thus imposes minimal structure on any data that are contained within the system. The model and interpretation for data contained within an informal system are external to that system.
7. Communication systems are frequently used to support informal exchanges. Information flow through an organization occurs both by formal processes and through the informal channels of the organization's communication infrastructure.
8. Informal information systems are used when data are of temporary value, of interest to very few people or are complex or when the content is not predictable in advance. When tasks are infrequent, it is more cost-effective to use an informal solution. However, if a task requires formalization because of its frequency or importance, more expensive and specific tools can be brought in to support it.

## DCR Grafer – cheat sheet

"Send kontrakt" har som betingelse (condition)  
at "Oplys tidlige ansættelser" er udført tidligere



"Accepter kontrakt" har som svar (response)  
at "Lav adgangskort" udføres senere



# Afleveringsopgave 1

## Assignment:

The process above is part of a bigger process that continues as shown below, modelling the surgery and postsurgical care:

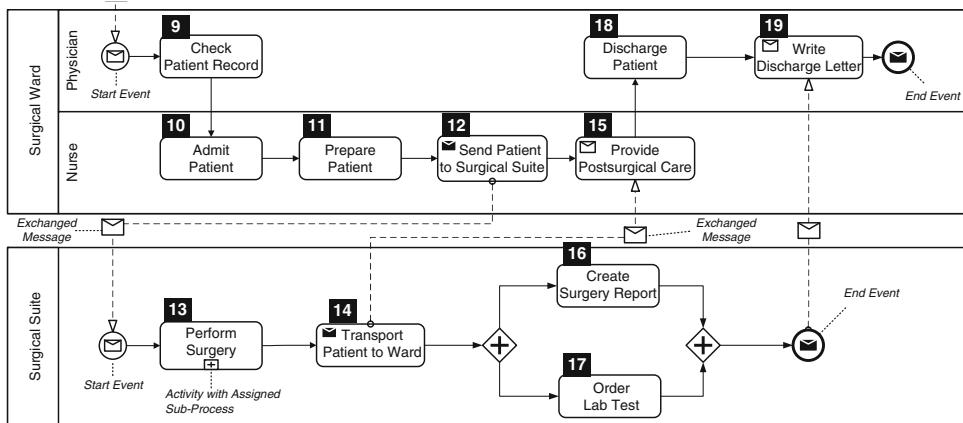


Figure 2: Surgery and Postsurgical care