AI and Automation: Transforming Municipal Care Services

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Background

Wrote thesis on Object Oriented Workflow with Transactional Capabilities.

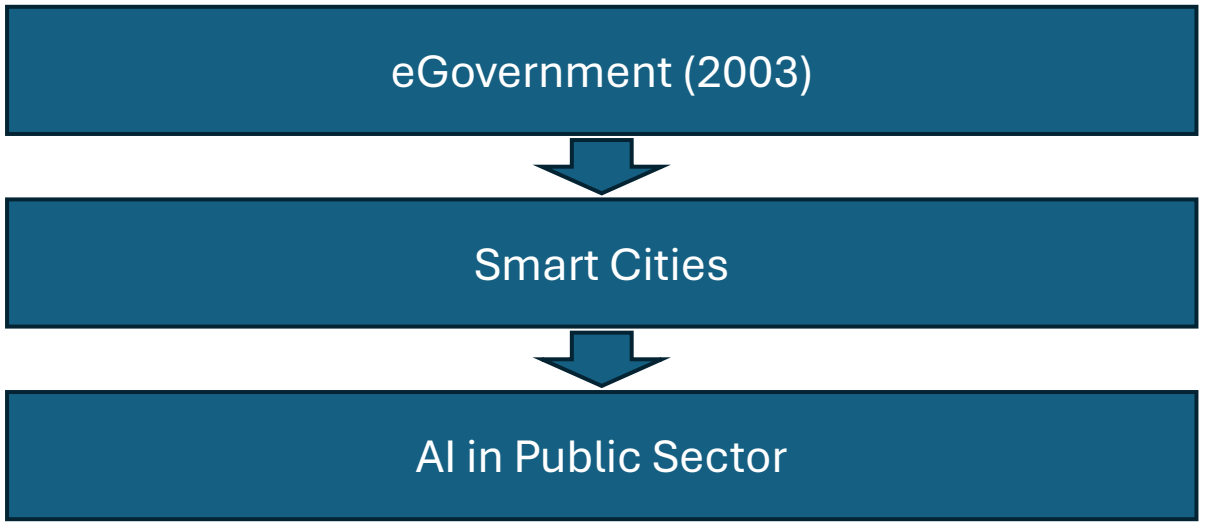
Business Process Reengineering (BPR).

Atomicity, Consistency, Isolation, Durability (ACID).

Focus on long-lasting transactions and their rollbacks.

Automation of *business processes*.

Background



Evolution of Public Sector Processes

Manual

Decicion Support

Self-service

Integration

Chatbots

AI

Manual Era

Paper forms

Manual reviews caused long processing times.

Documents were lost or misfiled

- Building permits
- Social benefits
- Tax return statements

Early e-Government

Provide electronic services for citizens 24 hours / 7 days a week

Self-service

Transactions through forms

- Applying for Kindergarten
- Tax return statements through Internet

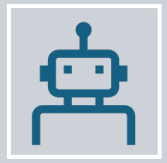
Technology, not organization

e-Government today

- Focus on backoffice integration
- Process engineering
- Multiple channel service delivery
- Portals and customization
- Organization, not technology

From Manual to Templates

Personal productivity



Still labor-intensive and prone to human errors.

Self-service

Meeting

Phone call

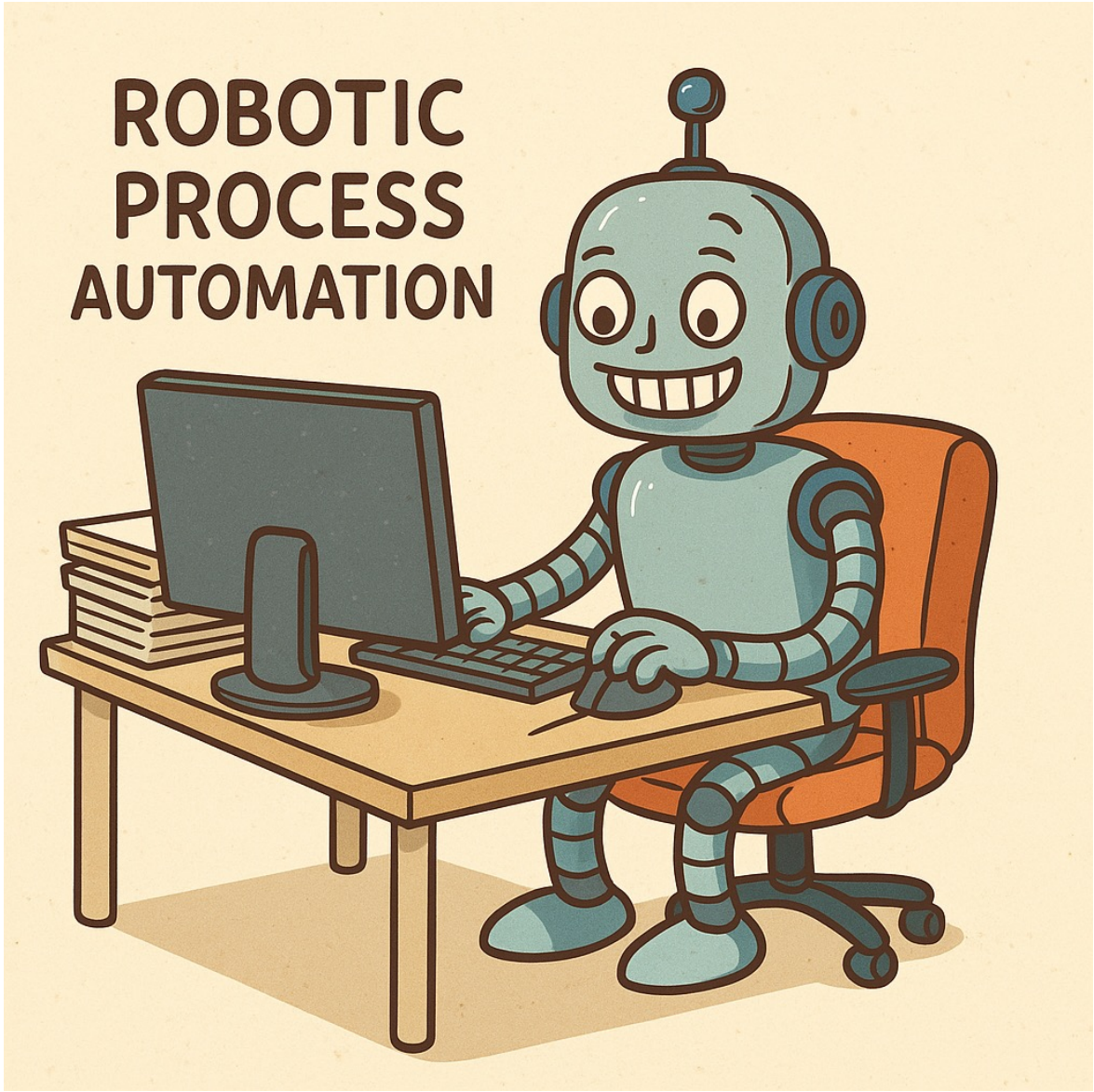
Online self-service

Workflow Systems

- A workflow is a system for managing repetitive processes and tasks which occur in a particular order.
- They are the mechanism by which people and enterprises accomplish their work, whether manufacturing a product, providing a service, processing information or any other value-generating activity.

https://www.ibm.com/think/topics/workflow

Robotic Process Automation



Robotic Process Automation

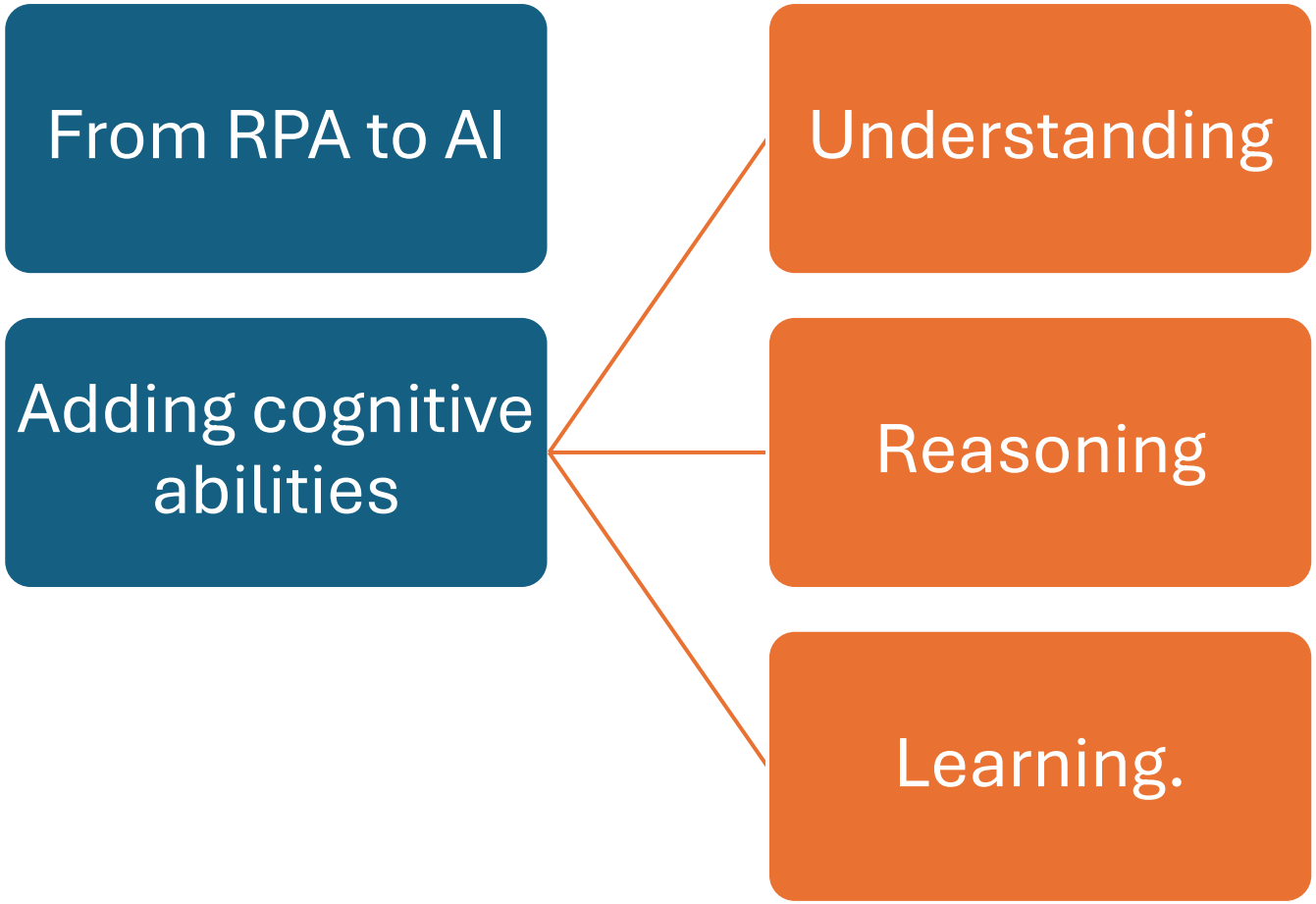
- Robotic process automation (RPA) is a software technology that makes it easy to build, deploy, and manage software robots that emulate human actions interacting with digital systems and software.
- Just like people, software robots can do things like understand what's on a screen, complete the right keystrokes, navigate systems, identify and extract data, and perform a wide range of defined actions.
- But software robots can do it faster and more consistently than people, without the need to get up and stretch or take a coffee break.

https://www.uipath.com/rpa/robotic-process-automation

Workflow Systems and RPA

Aspect	Workflow Systems	Robotic Process Automation (RPA)
Purpose	Automates business processes and task flow coordination	Automates repetitive, rule-based tasks typically done by humans
Automation Level	Process-oriented, requires human input at checkpoints	Task-oriented, operates independently after setup
Integration	Uses APIs to connect systems	Works at the user interface level, mimicking human actions
Implementation	Complex, requires system integration	Quick deployment, minimal changes to existing software
Use Case	Complex processes like HR onboarding	Repetitive tasks like data entry and form filling

Moving Towards AI – The Next Step



Automated Decision Making

Automated decision-making (ADM) with AI involves using algorithms and machine learning models to make decisions without human intervention.

These decisions are based on analyzing data, identifying patterns, and predicting outcomes.

Key Aspects of AI-driven Decision Making

Data-Driven Insights:

- Uses historical data, real-time inputs, and predictive analytics.
- Examples: Credit scoring, fraud detection, and predictive maintenance.

Algorithmic Decision Models:

- Models can include decision trees, neural networks, or ensemble methods.
- AI evaluates multiple scenarios to recommend or execute the best action.

Key Aspects of AI-driven Decision Making

Autonomous Actions:

- Systems execute decisions automatically, such as approving transactions or adjusting supply chain logistics.

Context-Aware Responses:

- Adaptive algorithms that learn and update decisions based on new data.
- Examples: Chatbots adjusting responses based on user sentiment.

Benefits

Speed: Faster decision-making compared to human evaluation.

Consistency: Eliminates human bias when properly designed.

Scalability: Handles large volumes of data effortlessly.

Challenges

Bias and Fairness: Poorly trained models can perpetuate discrimination.

Transparency: Decisions from black-box models can be hard to interpret.

Ethics: Concerns around accountability when decisions go wrong.

Integrating AI and RPA for Efficiency

Combining automation with intelligence.

Example: RPA for data entry, AI for decision support.

City of Sandefjord

- Population: 65 574 (2023)
- Located 120 km south of Oslo
- Yearly number of decisions regarding care services: 70.000

Introduction

Municipalities handle thousands of care service decisions annually.

The city of Sandefjord makes around 70.000 decisions regardig care

Focus on: RPA for routine tasks, AI-driven tools, Ethical considerations.

Mapping of current processes

- Steps in today's decision-making
- Repetitive tasks
- Routine work
- Time-consuming processes
- Low-hanging fruit

Methodology

- Review of existing procedures and guidelines
- Observation
- Interviews with employees

Introducing RPA for simple tasks

Robotic Process Automation

Clear rules

Collect necessary data and ensure correct and consistent information

Draft decisions based on rules

Deterministic

Development of AI-based decision-making tools

- Analysis and predictions
- Using lessons learned from previous decisions
- Experience-based
- Present alternatives

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Prediction

Predict possible bottlenecks

Data-driven: Time of year, infection rate for flu, etc.

Both patients and caretakers

Example Video (removed)

Automatic generation of decisions

Available upon request

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Automated compliance and control

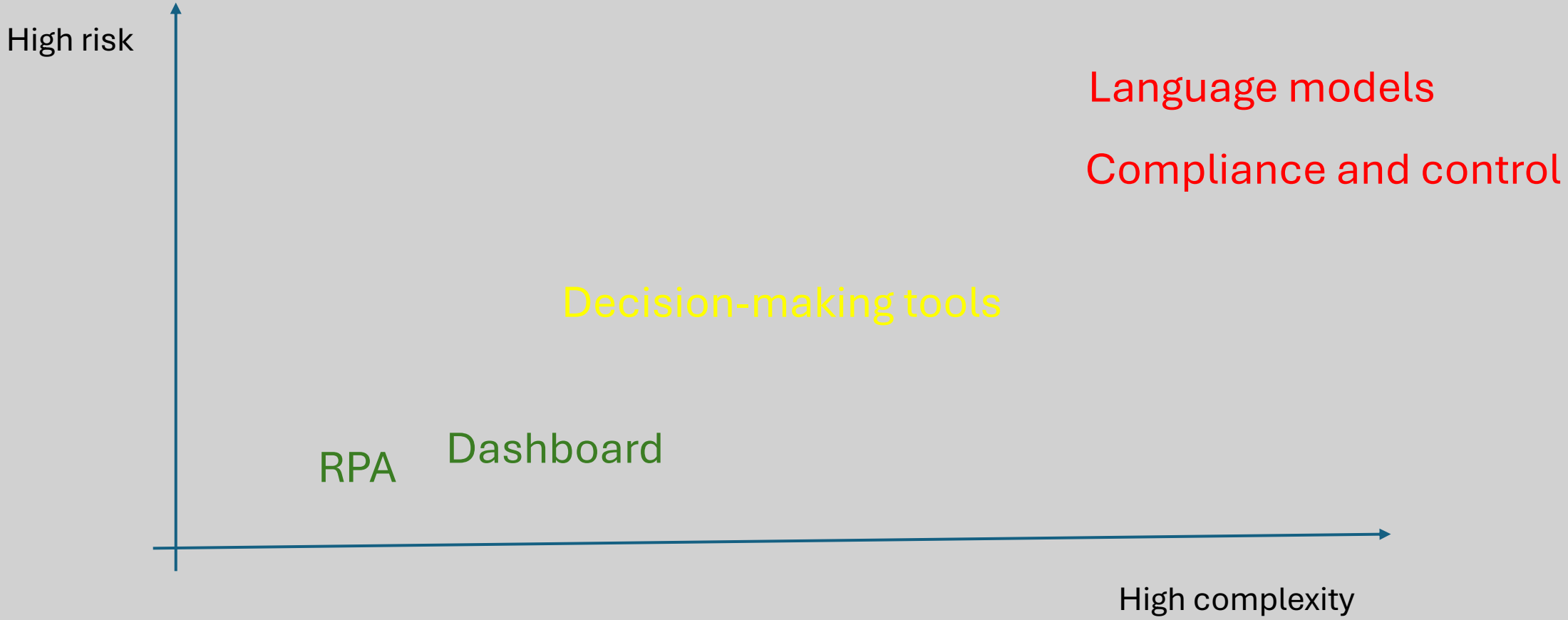
Monitor that laws and regulations are complied with in decisions

Report deviations

Dashboard

- Monitoring production
- Identify bottlenecks
- Processing time
- Complaints
- Feedback from employees

Risk profile



Ethical Issues

- Fair allocation
- Bias

More Use of AI

AI to generate consistent policy drafts.

- Saves time and improves consistency.

AI in case handling

- Summarize reports and highlight critical points.
- Assists employees in decision-making.

Predictive Analytics

- Predict high-demand periods for services.
- Optimize staff allocation.

The Tromsø Case

(How to not use AI)

Used ChatGPT to make a report on future school structure

Press discovered that most references in the report was fake – they did not exist

Ethical Considerations and Trust

- Bias in decision-making
- Data privacy
- Transparency
- Citizen education
- Clear accountability.