



# National IT architecture framework – the danish case

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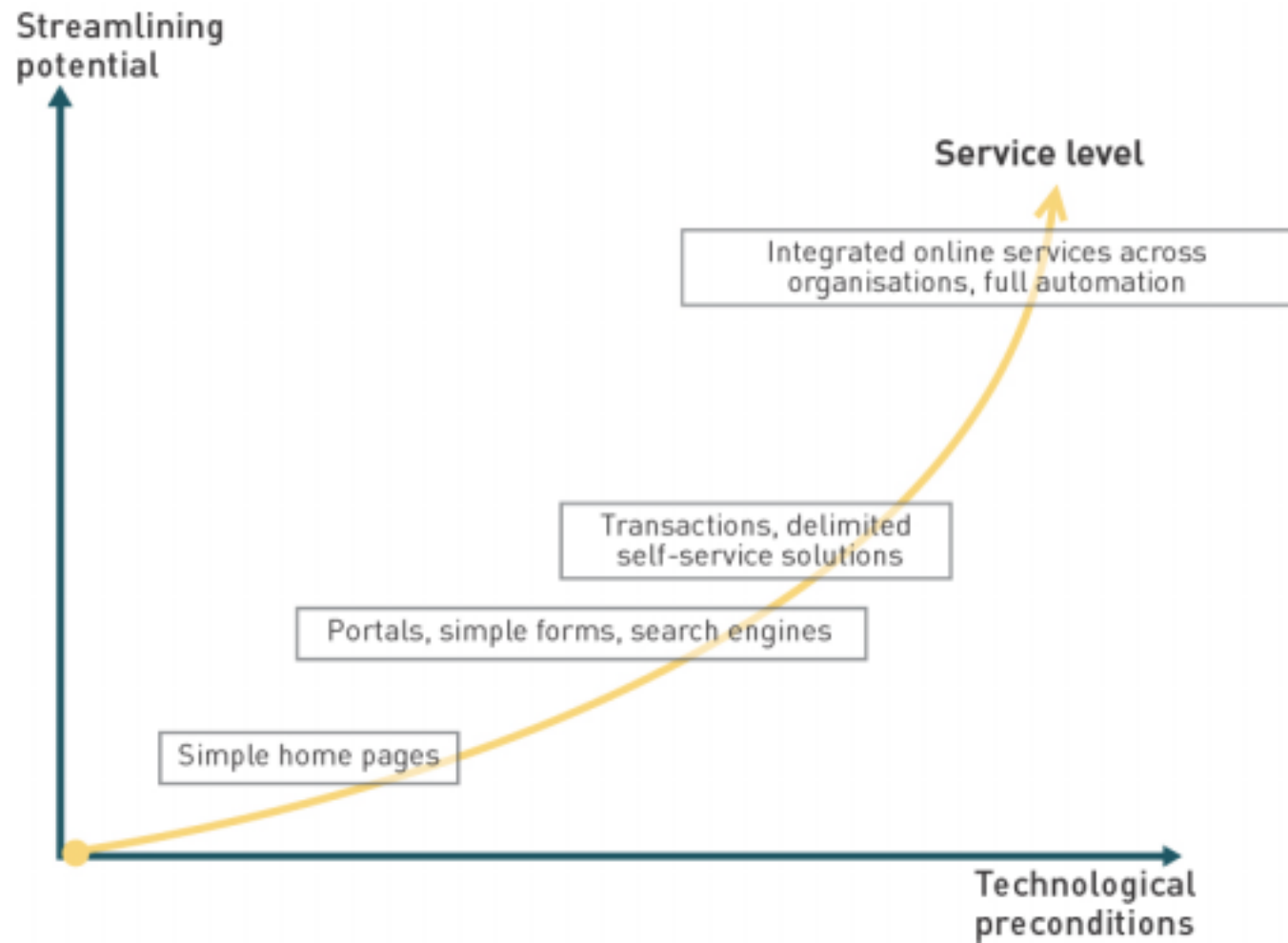


# The Danish eGovernment vision

"The vision for eGovernment is that the digital technologies are used systematically to reconsider and change the organisations and work processes to increase the quality of service and efficiency".



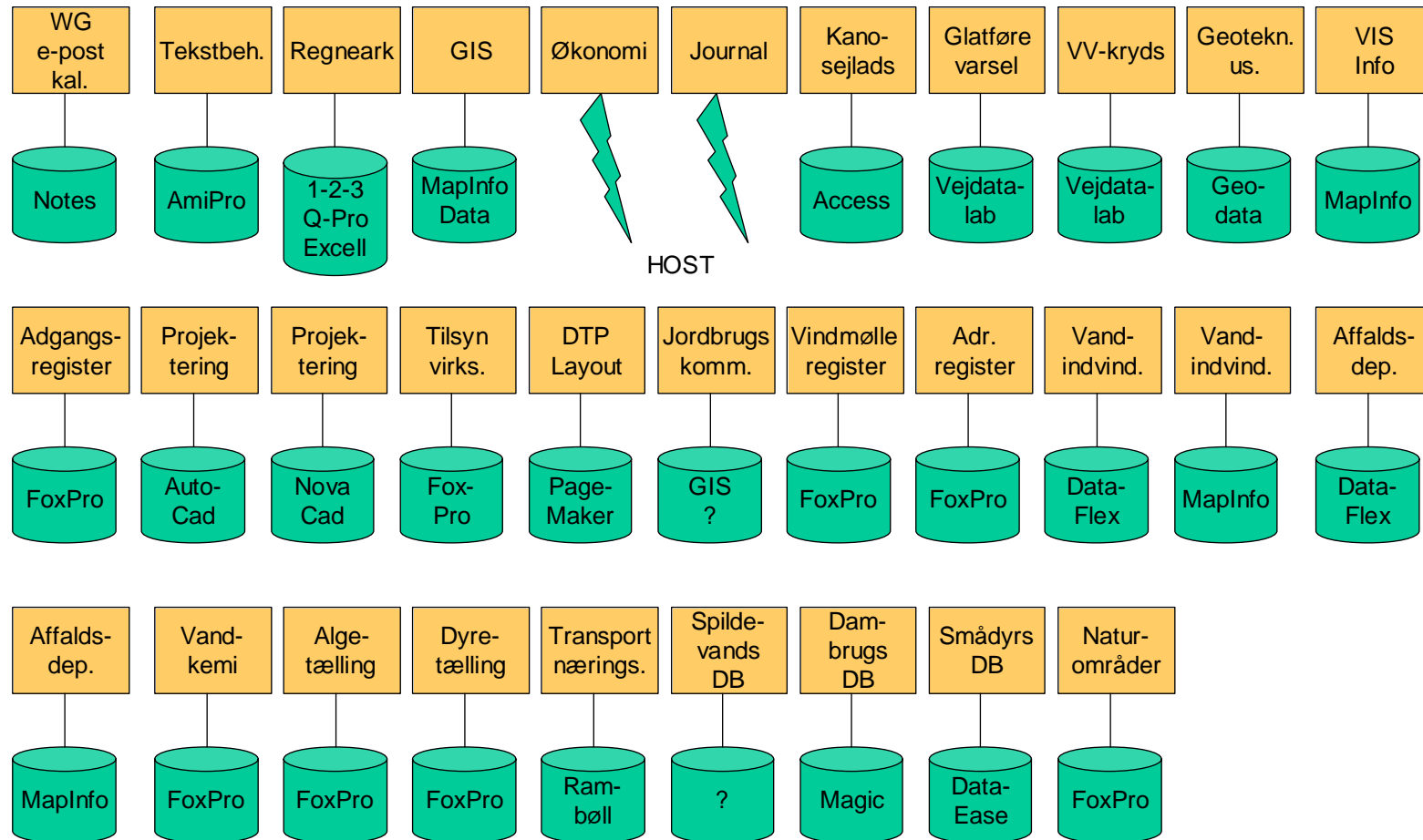
## Challenge: Citizen service





# Challenge: Internal systems

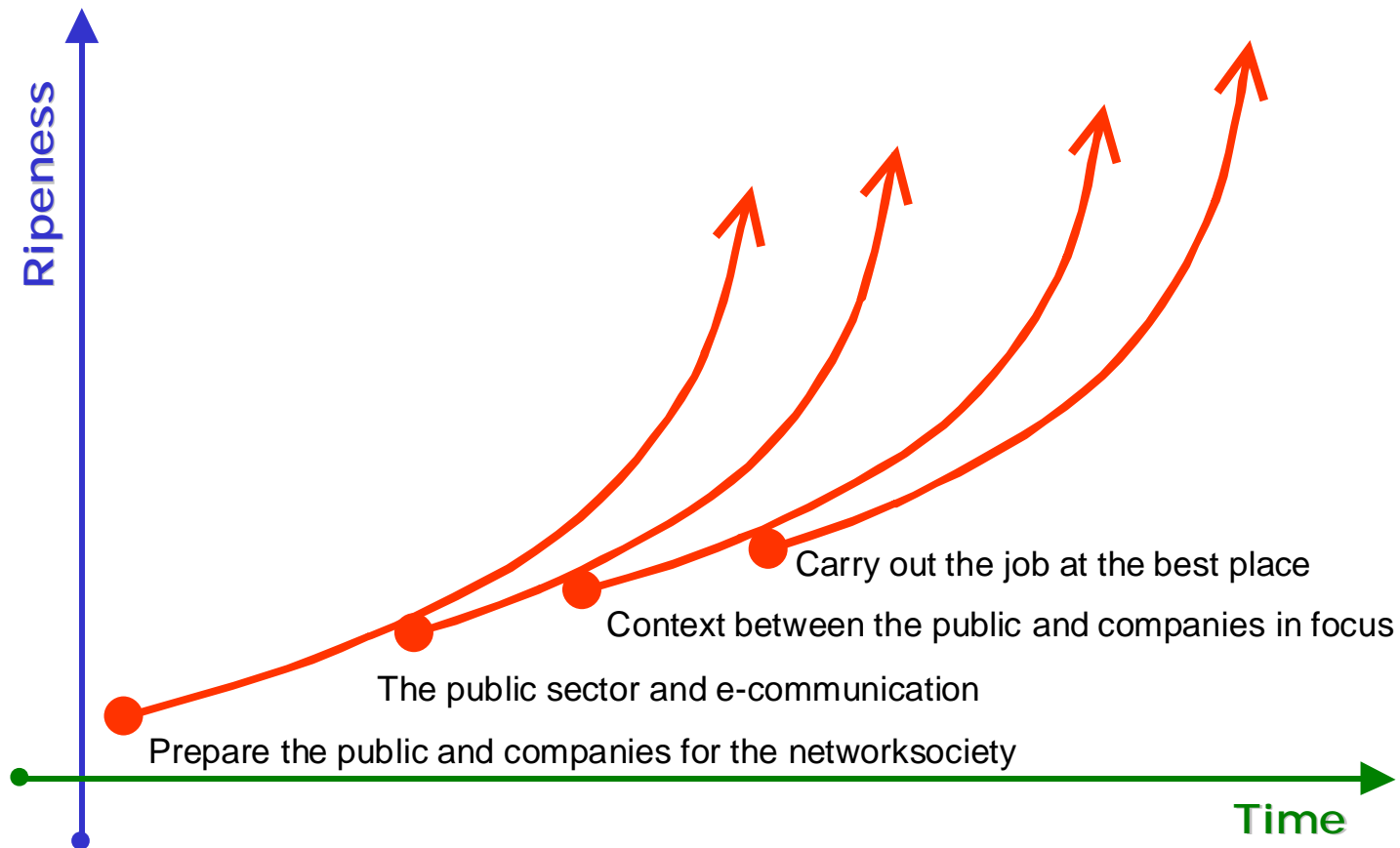
Administration & technology & environment in a county



Source: Devoteam Fischer & Lorenz



# Goals and direction





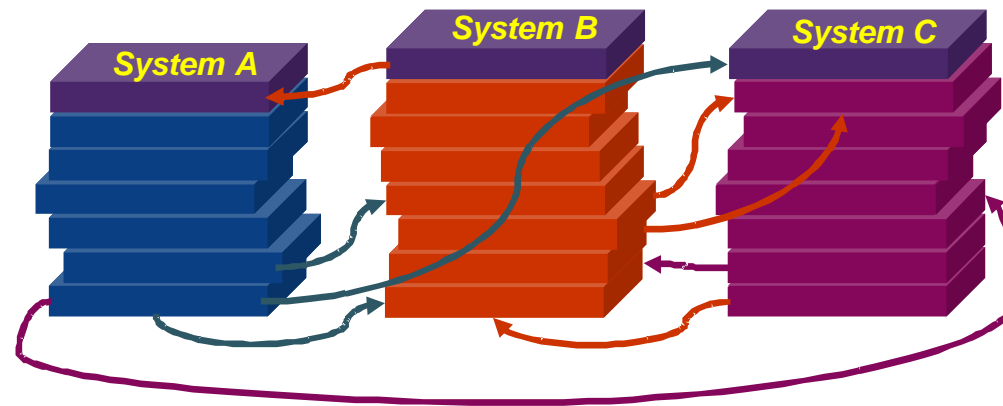
# The digital town planning

- The business drives the IT-architecture
- Common (political) interests
- Common "mindset"
- Common rules and framework
  - and individual freedom of action within this
- Coordinated planning
  - And individual planning and management
- Management of the deviations
  - A balance between community and the user

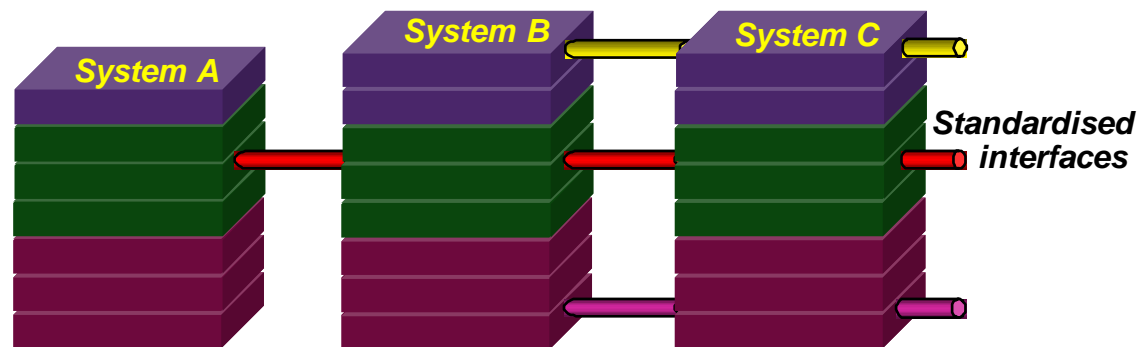




# Gains from a good architecture



**Expensive & inoptimal interfaces**



**The architecture facilitates simplified structure**



# Existing architecture

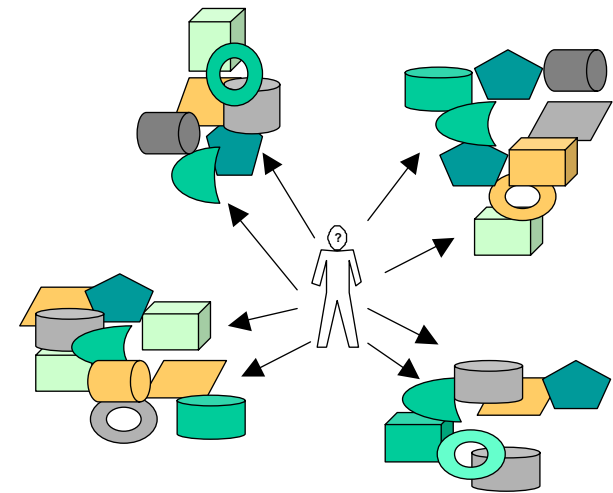
- Tailor-made solutions developed for isolated business processes
- Every entity/public authority/department has a unique system
- Citizen services fire-up under isolated forms

## Advantages:

- Autonomous independent public authorities

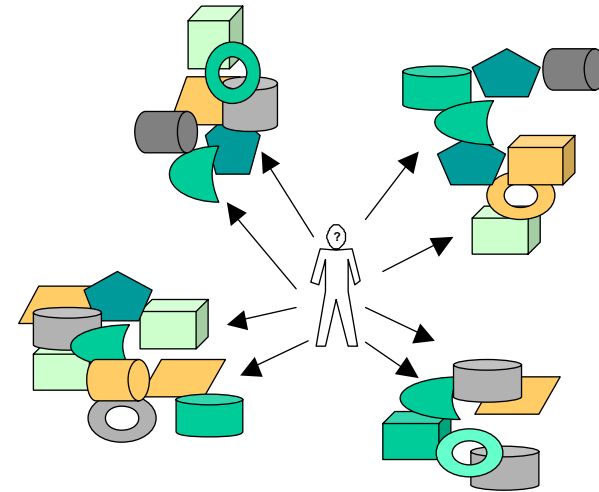
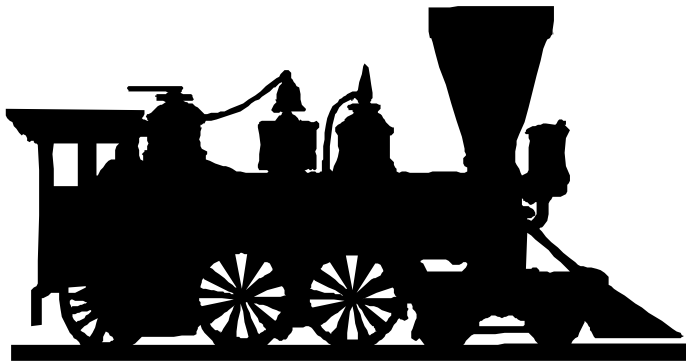
## Disadvantages:

- Data-islands and redundancy
- No recycling or joint functionality
- Each system requires specific competencies
- Citizens must find their own way in the public sector's internal structure





# Existing architecture



Each train has its own track and ticketing-system

The customer must plan his or her own journey with several trains and purchase tickets at various ticket counters



# Service-Oriented Architecture

5 Principles

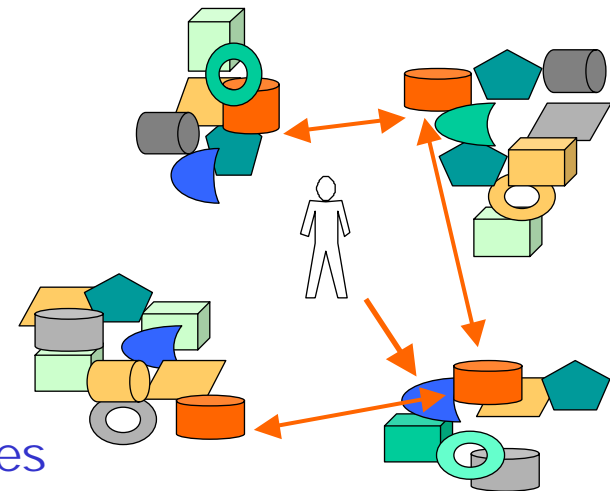
Interoperability  
Security  
Openness  
Flexibility  
Scalability

Efficiencies

Systems must support cross-cutting public service processes

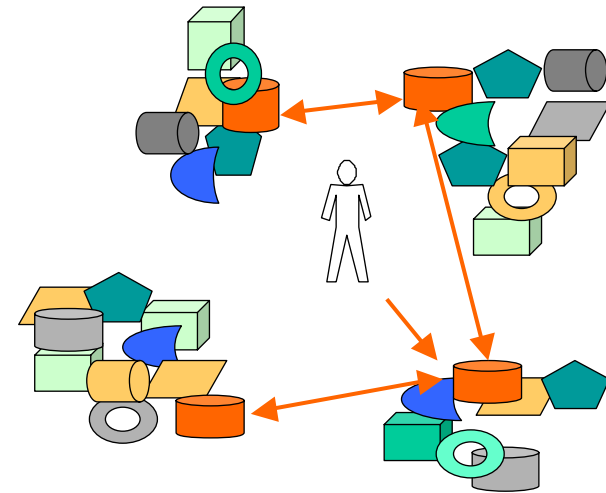
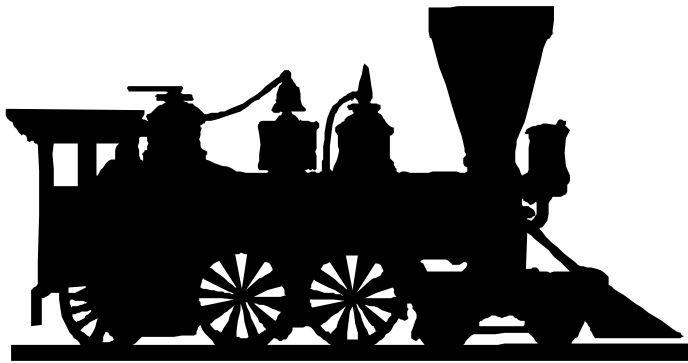
Citizen-centricity

Integrated service across public entities





# Service-oriented architecture



Joint railway system

The ticketing systems can make reservations with one another

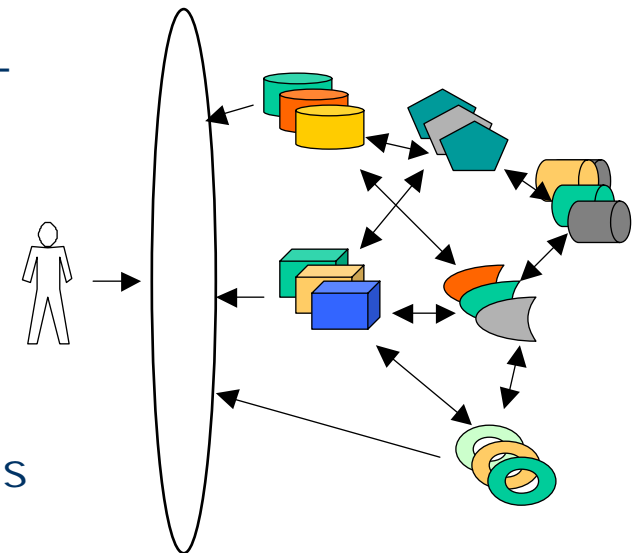


# Information society demands of public sector IT-architecture

Similar functions implemented in generic rule-based components

## Benefits:

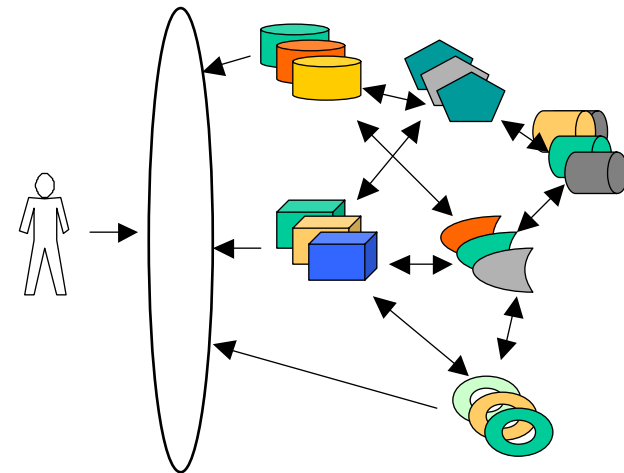
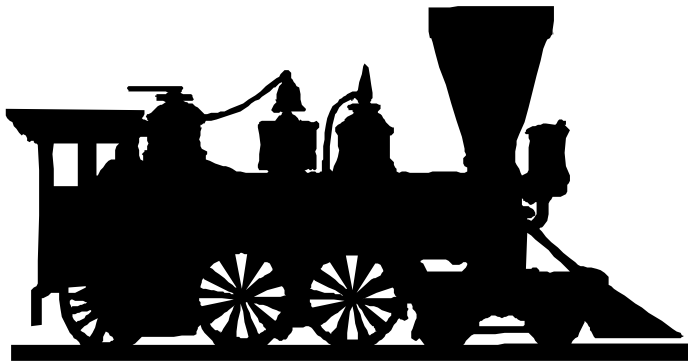
- Better, easier and more coherent services
- The combined system is smaller than today's
- The task of collecting and processing redundant data is eliminated
- The system is independent of the public authorities' organisational structures and portfolios



Common playing field



# Information society demands of public sector IT-architecture



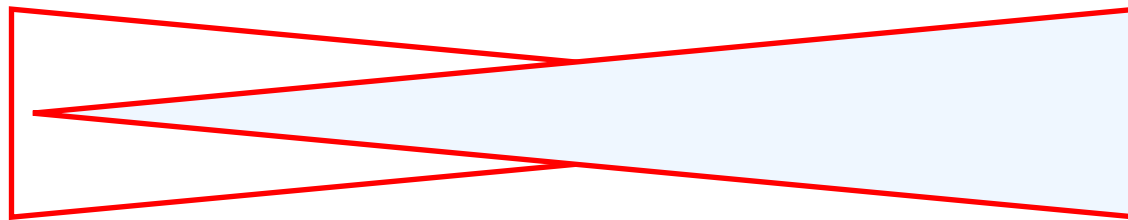
Ticketing system and rails are made available to a multitude of companies

New trains and new ticket-offerings can be launched without laying down new rails

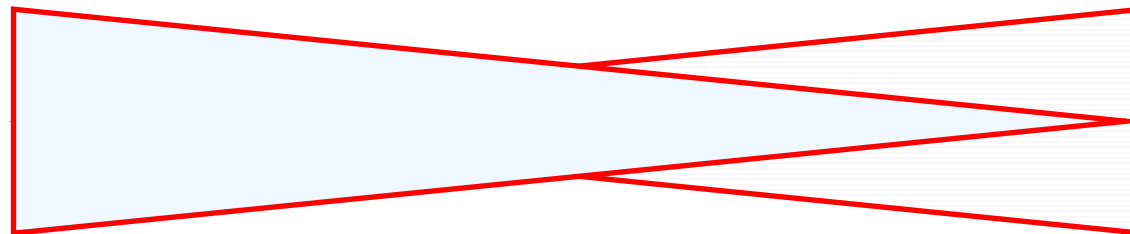


# Architecture is not about technology

Past



Future



Business Focus



IT Focus



# eGovernment Organisation and Process

## Project eGovernment

- Projects
- Focal points/activities
- Service collaboration

Facilitates

## Centres of Competence

### Data

- OIOXML
- ISB
- Cookbooks
- Communities Of Practice

### Architecture

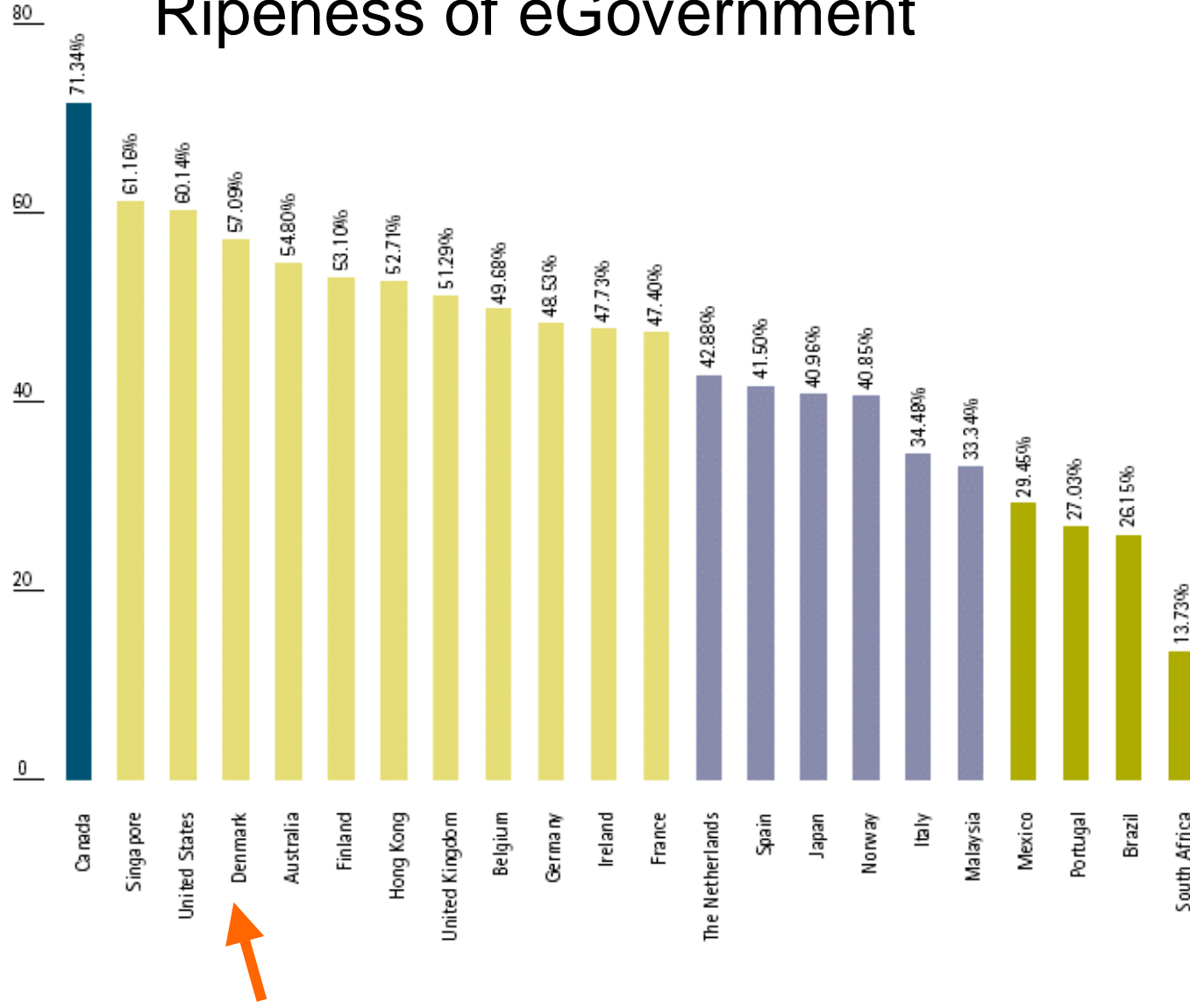
- Green Paper
- White Paper
- Handbook
- open process
- consensus
- supplier participation

### DITA

XML Committee  
Architecture Committee  
IT Strategic Office  
International collaboration



# Ripeness of eGovernment





## Public sector computerisation Expenditure per capita in 2000

<b>Denmark</b>	<b>317 euros</b>
Sweden	273 euros
Finland	256 euros
United Kingdom	201 euros
Netherlands	193 euros
France	160 euros
Germany	155 euros
Belgium	155 euros
Austria	125 euros
Ireland	122 euros
Italy	78 euros
Portugal	52 euros
Spain	44 euros
Greece	44 euros

## IDC/World Times Information Society Index 2001

1	Sweden	6,496
3	Finland	5,953
<b>5</b>	<b>Denmark</b>	<b>5,837</b>
6	United Kingdom	5,662
10	Netherlands	5,238
13	Germany	4,937
14	Austria	4,868
17	Belgium	4,439
20	Ireland	4,202
21	France	4,104
23	Italy	3,844
24	Spain	3,675
25	Portugal	3,262
26	Greece	2,877

(Heath, W., Computing the cost. *Government Computing* p.28, J



## Non-technical challenges

- Knowledge: Architecture is not broadly understood, a consistent approach spanning authorities is required.
- Technical: Standardisation efforts creates winners & losers, battles are inevitable.
- Financial: Infrastructure project funding will be a show-stopper if not resolved.
- Organisation & Culture: Departmental autonomy must give way to the public interest.
- Legislative: Information sharing & protection of privacy issues drive compromise solutions and legislative changes.



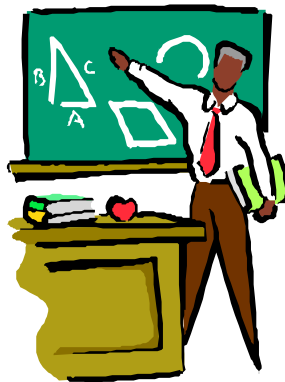
# Strategic choices

- Common Service-Oriented Architecture Framework
- Integration-based on emerging standards
  - XML, Web Services
  - Open standards!
- Data standardisation
  - Data models
  - Interfaces
  - Other specifications:
    - Security
    - Process definition
    - Etc.

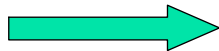


# Standardisation in a changing world

Data model (stable)

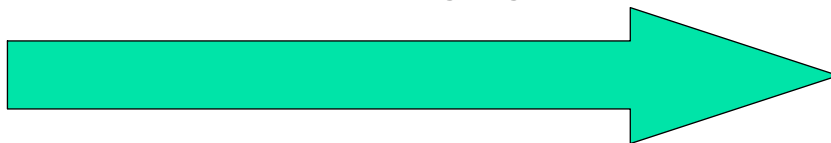


Schema standard (stable over 3-5 years)



```
<?xml version="1.0" encoding="UTF-8"?>
<schema targetNamespace="http://rep.oiio.dk/cpr.dk/xml/schemas/core/2002/06/28/"
  xmlns:cpr="http://rep.oiio.dk/cpr.dk/xml/schemas/core/2002/06/28/"
  xmlns="http://www.w3.org/2001/XMLSchema"
  elementFormDefault="qualified"
  attributeFormDefault="qualified"
  version="1.1">
  <element name="FirstName" type="cpr:FirstNameType"/>
  <simpleType name="FirstNameType">
    <restriction base="string">
      <minLength value="1"/>
    </restriction>
  </simpleType>
</schema>
```

Protocols (ever changing)





Our White Paper on EA:  
<http://www.oio.dk/arkitektur/eng/>

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