

Process Requirements Analysis



Towards a more
legislation oriented
approach for process
development

Introduction

- **Patries Kordelaar:**
 - ◆ Leibniz Center for Law (University of Amsterdam)
 - Senior Researcher
 - ◆ RuleWise
- **Tom van Engers:**
 - ◆ Leibniz Center for Law (University of Amsterdam)
 - Professor Legal Knowledge Management
 - ◆ Dutch Tax and Customs Administration
- **Rex Arendsen:**
 - ◆ Leibniz Center for Law (University of Amsterdam)
 - PhD student
 - ◆ Dutch Tax and Customs Administration
 - Worked on ICTAL
- Presentation is based upon research conducted in cooperation with DTCA and
- Empirical research on the Administrative Burden

Outline presentation

- Public Administration and legislation
- POWER programme: handling legislation within the DTCA
- Recent extensions on POWER

- Empirical research on the administrative burden



Public Administration and legislation

- DTCA is law enforcement organization
 - ◆ Every action of a PA such as the DTCA must have a basis somewhere in legislation
- Process development:
 - ◆ Bounded by requirements from legislation
 - ◆ But PAs also have discretionary freedom

Current PA's practice in process design & implementation

- No systematic reference to legislative basis (actually no portfolio management whatsoever)
- Hardly any documentation on design decisions and chosen interpretation
- Disadvantages:
 - ◆ Hard to assess the impact of changes
 - Laborious task
 - Often too much is changed (especially in ICT)
 - Workability and costs to enforce are hard to establish
 - ◆ Easy to overlook something
 - ◆ Dependent on scarce experts (no method!)
 - ◆ Uncertainty about legal basis of decisions



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First conclusion

- For PAs like the DTCA it is important to implement legislation within their processes, products and services in a *traceable* and *transparent* (interpretation) manner (portfolio management)
- This enhances the agility of the organisation
- Being agile is even more important for PAs such as the DTCA due to recent developments

Recent developments within the DTCA (1)

- Leading organization in the Netherlands with regard to collecting and spending money
 - ◆ New tasks (subsidies for housing, health-care, child nursery)
 - ◆ Huge BPR operation in very little time
 - ◆ Re-use of processes and systems: but different paradigm
 - ◆ During operation legislation changed constantly (and no firm methodology for traceability)
 - ◆ Result: not very positive
 - ICT not ready in time
 - Manual handling of subsidy grants
 - Big delay in processing child-nursery grants
 - Not informing citizens on time with regard to housing grants
 - Mistakes in decisions
 - Many complaints (National Ombudsman) and petitions
 - Call centers gave wrong information



Recent developments within the DTCA (2)

- Only collector of wage, income and capital related data
 - ◆ DTCA distributes information towards other organization (reduction of administrative burden)
 - ◆ Reshuffling of processes and systems
 - ◆ Thinking in chains (legislation is distributively enforced by different organizations)
 - ◆ ICT Interoperability proved to be difficult
- In modern society electronic service delivery is a must
 - ◆ Asks for redesign processes (front - back-office)
 - ◆ Transparency needed: Backing of decisions reached at semi-automatically
 - ◆ Problems with DigiD: use the DigiD of your neighbor
- Continuing story: Fast rate of change of legislation

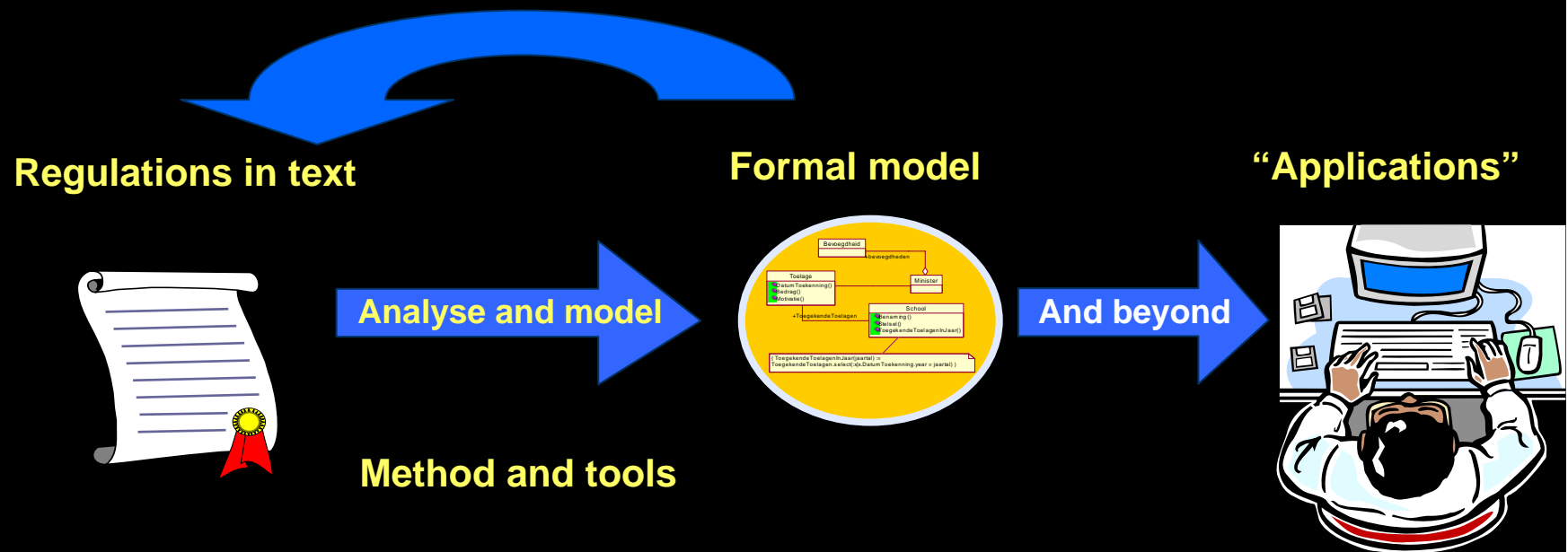
Reduction of complexity

- Developments enhance need for:
 - ◆ Agility: Traceability and transparency can augment this
- DTCA recognizes this:
 - ◆ Programme: Reduction of complexity
 - Making the organization more agile
 - Knowledge architecture
 - ◆ Separation of legislation (declarative); processes and data
 - ◆ What is steady (and reusable) and what is not?
- Luckily they don't have to start from scratch: they have POWER

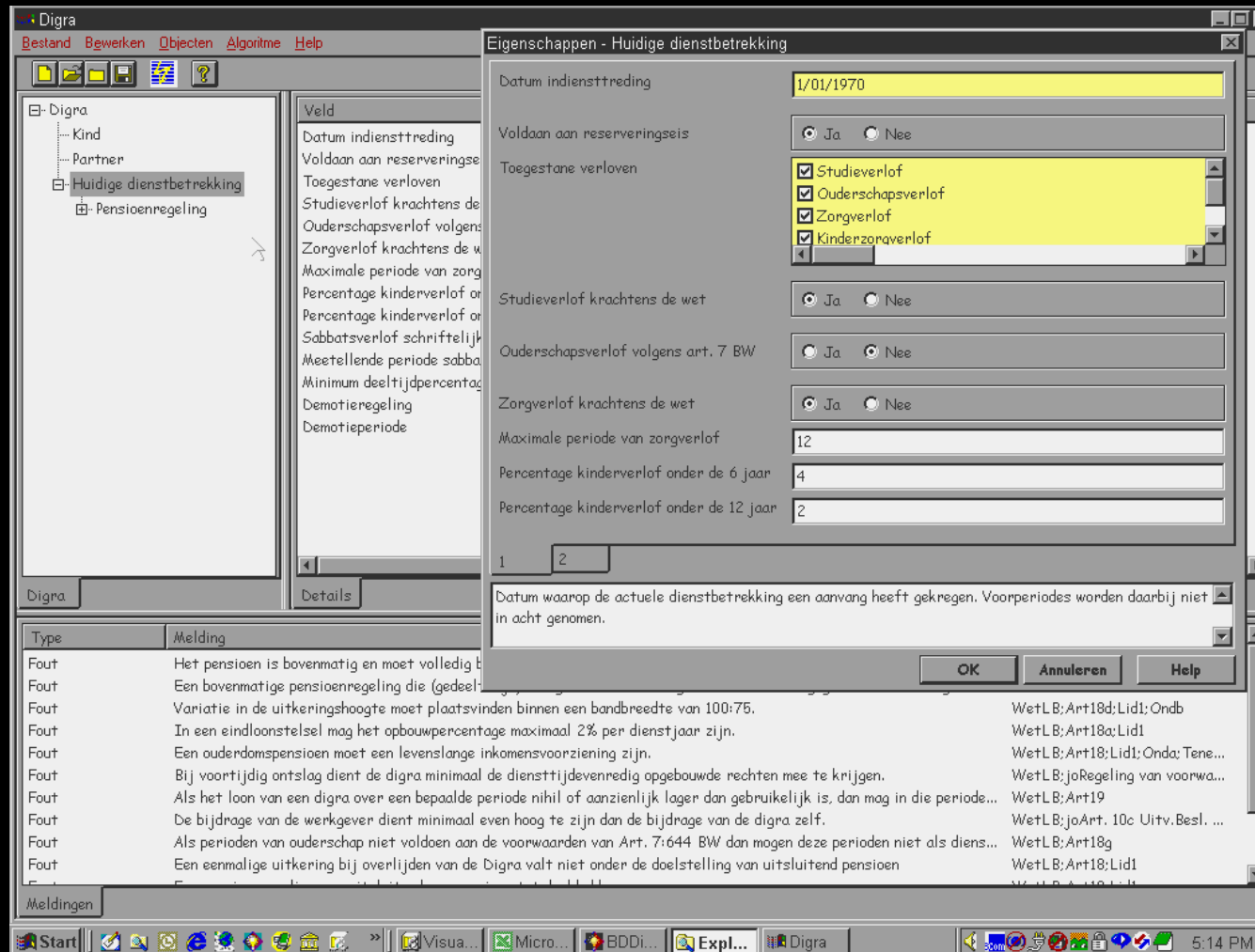


What is POWER

- Program for an Ontology based Working Environment for modeling and using Regulations
- Support for the whole legislative chain within the DTCA (started 1998)
- The core of POWER:



Example of a POWER application



The screenshot shows the Digra application interface. The main window has a menu bar (Bestand, Bewerken, Objecten, Algoritme, Help) and a toolbar. On the left, a tree view shows the hierarchy: Digna > Kind > Partner > Huidige dienstbetrekking > Pensioenregeling. The 'Details' pane shows a list of fields for 'Huidige dienstbetrekking', including 'Datum indiensttreding', 'Voldaan aan reserveringseis', 'Toegestane verloven', etc. The 'Eigenschappen - Huidige dienstbetrekking' dialog box is open, displaying the following fields:

- Datum indiensttreding: 1/01/1970
- Voldaan aan reserveringseis: Ja Nee
- Toegestane verloven:
 - Studieverlof
 - Ouderschapsverlof
 - Zorgverlof
 - Kinderzorgverlof
- Studieverlof krachtens de wet: Ja Nee
- Ouderschapsverlof volgens art. 7 BW: Ja Nee
- Zorgverlof krachtens de wet: Ja Nee
- Maximale periode van zorgverlof: 12
- Percentage kinderverlof onder de 6 jaar: 4
- Percentage kinderverlof onder de 12 jaar: 2
- Buttons: 1, 2
- Datum waarop de actuele dienstbetrekking een aanvang heeft gekregen. Voorperiodes worden daarbij niet in acht genomen.
- Buttons: OK, Annuleren, Help

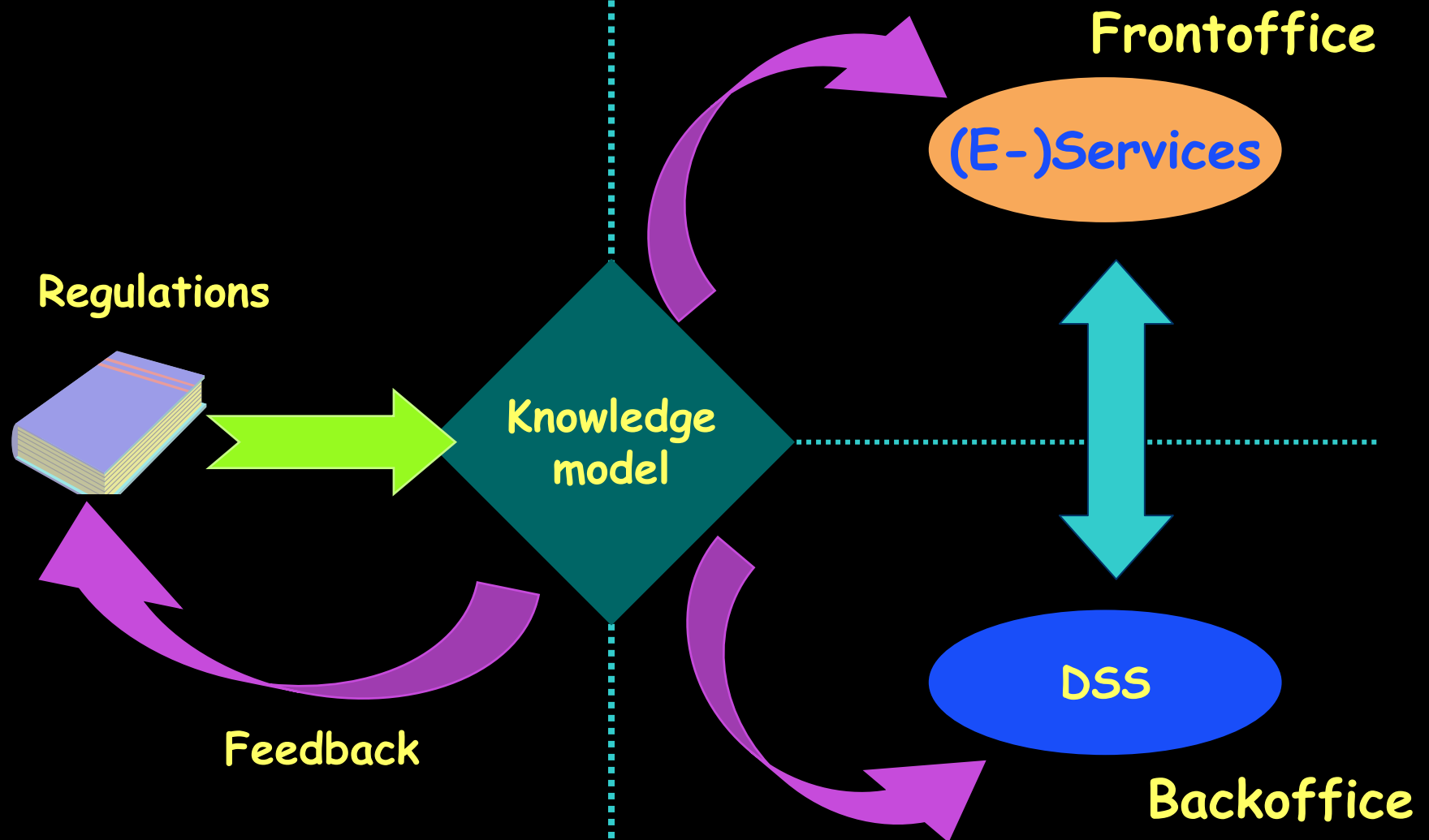
At the bottom of the application, there is a 'Meldingen' (Messages) pane with a table of error messages:

Type	Melding	Referentie
Fout	Het pensioen is bovenmatig en moet volledig b...	
Fout	Een bovenmatige pensioenregeling die (gedeel...	
Fout	Variatie in de uitkeringshoogte moet plaatsvinden binnen een bandbreedte van 100:75.	WetLB:Art18d:Lid1;Ondb
Fout	In een eindloonstelsel mag het opbouwpercentage maximaal 2% per dienstjaar zijn.	WetLB:Art18a:Lid1
Fout	Een ouderdomspensioen moet een levenslange inkomensvoorziening zijn.	WetLB:Art18:Lid1;Onda;Tene...
Fout	Bij voortijdig ontslag dient de digra minimaal de diensttijdevenredig opgebouwde rechten mee te krijgen.	WetLB:joRegeling van voorwa...
Fout	Als het loon van een digra over een bepaalde periode nihil of aanzienlijk lager dan gebruikelijk is, dan mag in die periode...	WetLB:Art19
Fout	De bijdrage van de werkgever dient minimaal even hoog te zijn dan de bijdrage van de digra zelf.	WetLB:joArt. 10c Uitv.Besl. ...
Fout	Als perioden van ouderschap niet voldoen aan de voorwaarden van Art. 7:644 BW dan mogen deze perioden niet als diens...	WetLB:Art18g
Fout	Een eenmalige uitkering bij overlijden van de Digra valt niet onder de doelstelling van uitsluitend pensioen	WetLB:Art18:Lid1

Goals of POWER

- Deliver transparent, explicit and unambiguous specifications of legislation
- Keep specifications traceable towards the original legislative text
- Check legislation on anomalies
- Make adaptable and re-usable specifications
- Improve service delivery towards citizens
- Knowledge model of legislation that can be used for communicating legal knowledge throughout the organizations

Bridging the gap between drafting and enforcing



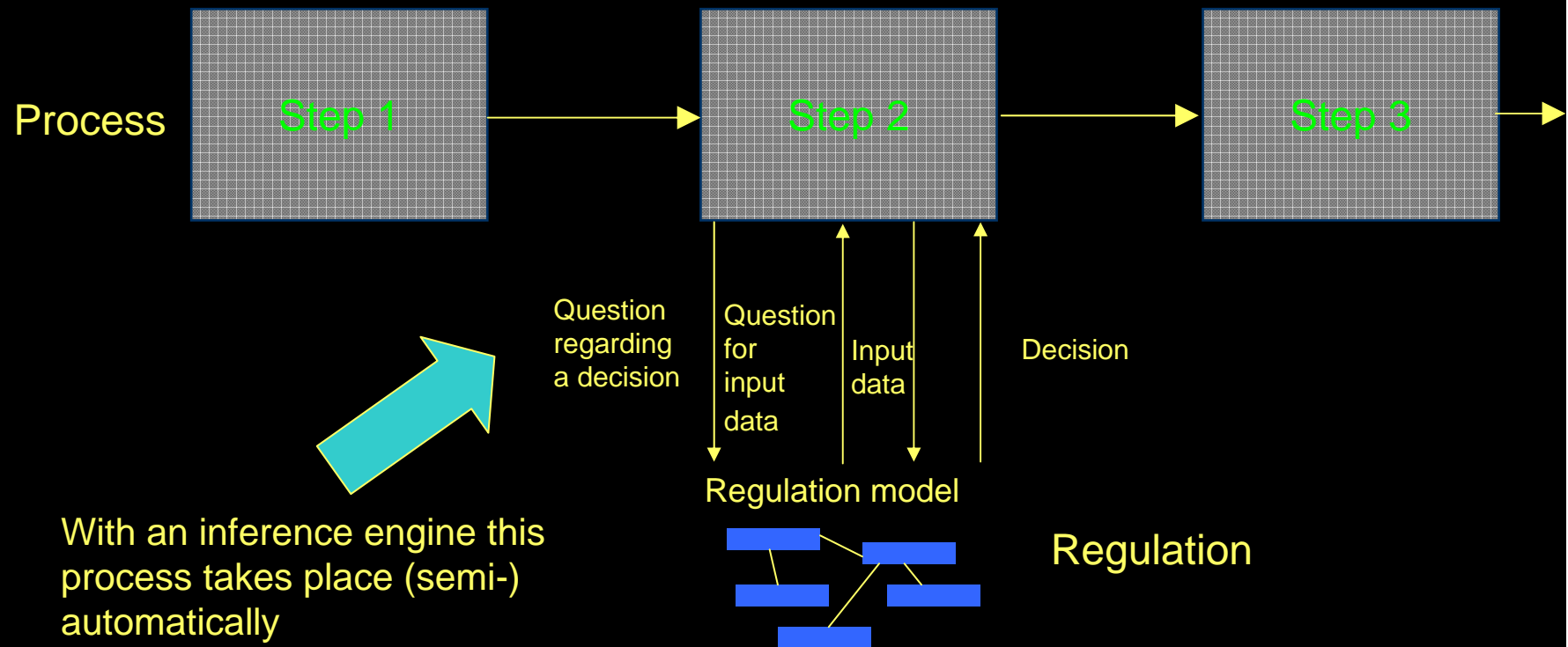
State of the art POWER

- Research program has been successful:
 - ◆ Method and tools delivered and proven for fiscal legislation and other domains in different countries (E-POWER; Several commercial derivatives)
- ◆ Several successful applications serving different goals
- Implementation advances with difficulty
 - ◆ Knowledge and skills needed (educational program under development)
 - ◆ Resistance to change
 - ◆ Method for bridging the gap between the legislation/model and processes, services and data is still incomplete



POWER+: Embedding Knowledge in processes, first approach

- Automated use of specifications



POWER +: Towards processes, first approach

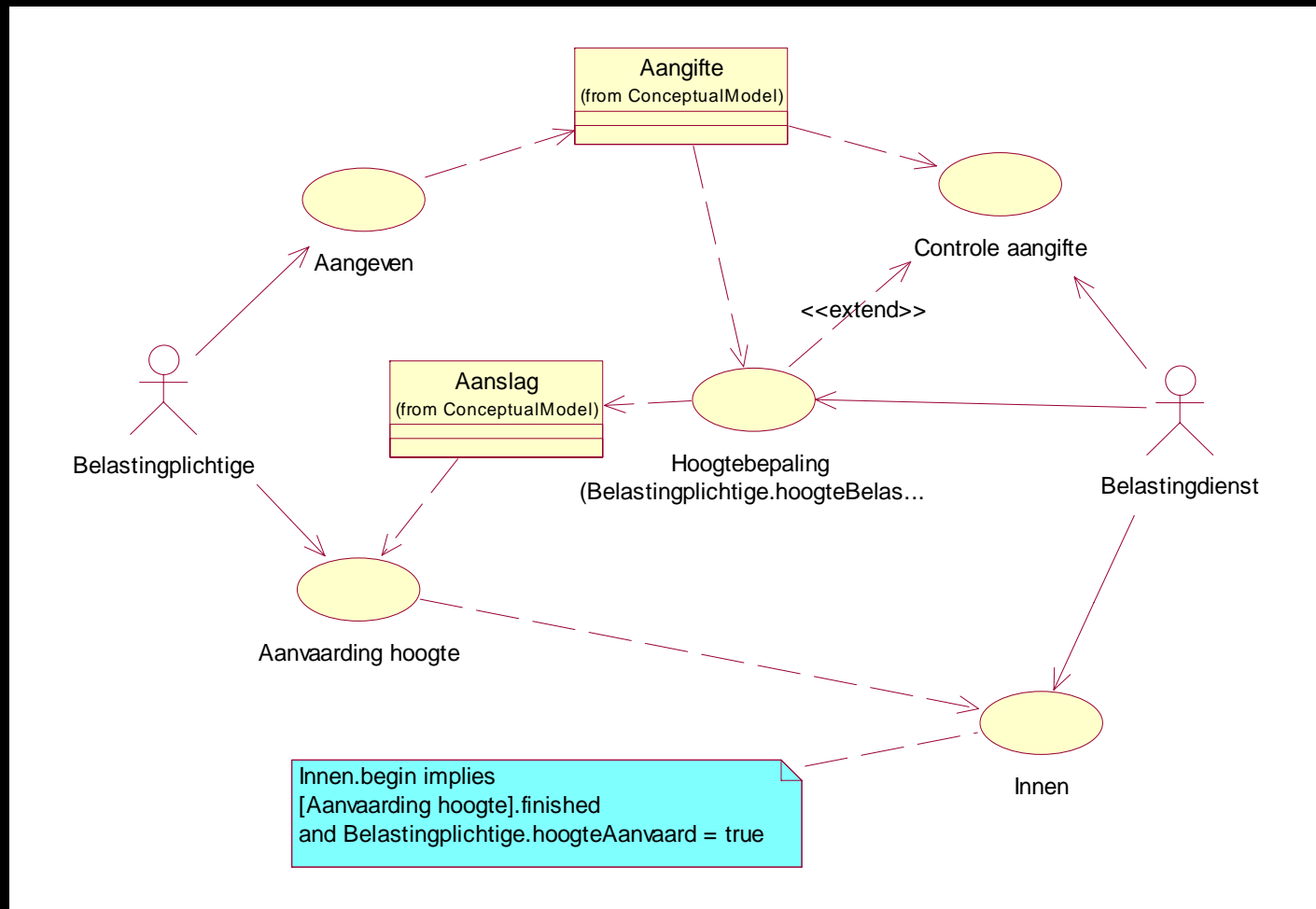
- Initial approach was not embraced:
 - ◆ Not all processes were modeled
 - ◆ Not all data elements were included in process models
 - ◆ Resistance towards automatic approach
 - ◆ Approach came too early?



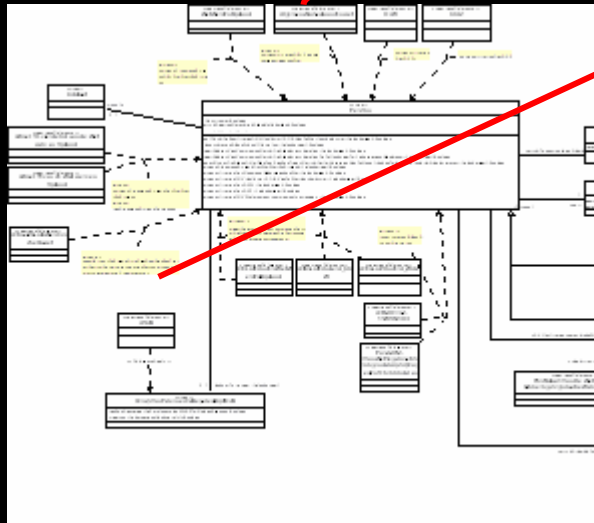
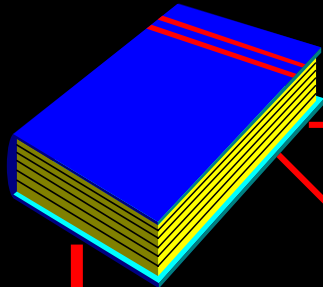
POWER +: Process Requirements Analysis, second approach

- Regulations give piecemeal information about:
 - ◆ (Sub-)Processes and order
 - ◆ Actors, triggers, data, resources
 - ◆ Indicators, priority between indicators
- Represent this process information in separate requirements:
 - ◆ Use cases
 - ◆ Use cases presented to process developers

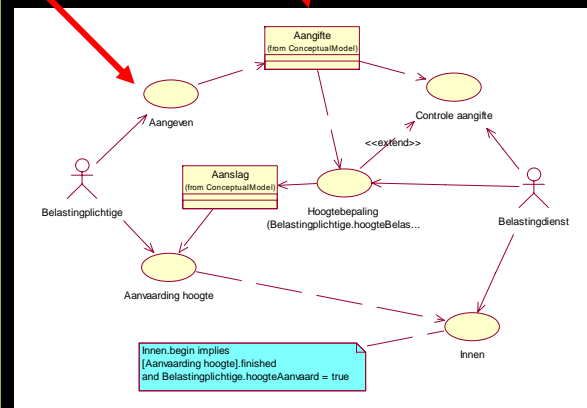
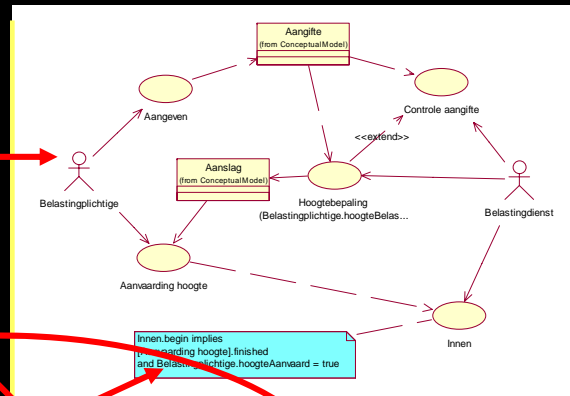
Process requirement in use case



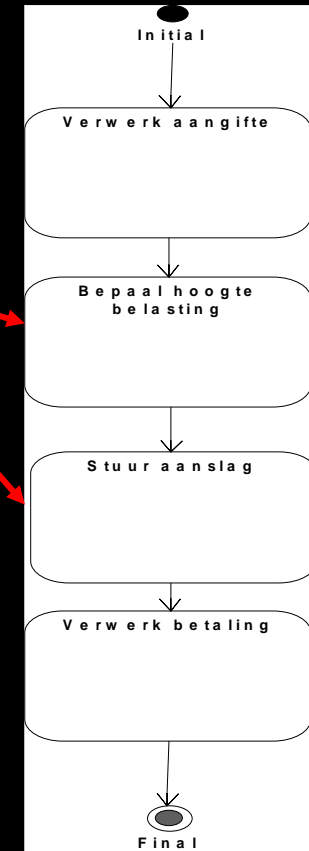
Place use case in development process



Regulation and
POWER model



Process Requirements



Process model

First small test

- Idea of isolated process requirements is appealing (although clustering is needed)
- Representation is intuitive and precise
- Gives process developer enough information
- Traceability of important as well as administration of interpretation decisions
- Keeping models up to date requires a maintenance process (organization?)

Research questions for near future

- Methodology for finding process, data and service information in legislation (use of NLP)
- How to represent these:
 - ◆ allow combination with the declarative knowledge models
 - ◆ in a traceable and transparent manner
- How to organize the development and maintenance processes in PAs (education etc..)

Research continued within Estrella

- This research is continued within the Estrella programme:



- ◆ 6th framework EU programme
- ◆ Goal: Developing LKIF (legal knowledge interchange format), aiming to be a standard for modeling legal knowledge
- ◆ See: <http://www.estrellaproject.org>

Empirical research on the Administrative Burden

An Empirical Study on B-to-G Data Exchange Strategies to Reduce the Administrative Costs for Businesses



Theoretical Background

Information obligation costs

- ◆ focus on (measurement of) business costs (Allers)
- ◆ Information obligation costs can be measured as the costs of B-to-G data exchange: message production and transportation (Nijssen)

Information obligation costs (administrative burdens) are the costs that the corporate sector must make in order to comply with the information obligations resulting from Government-imposed legislation and regulations (in the Netherlands approximately 18 billion Euro per year!).



Research Question

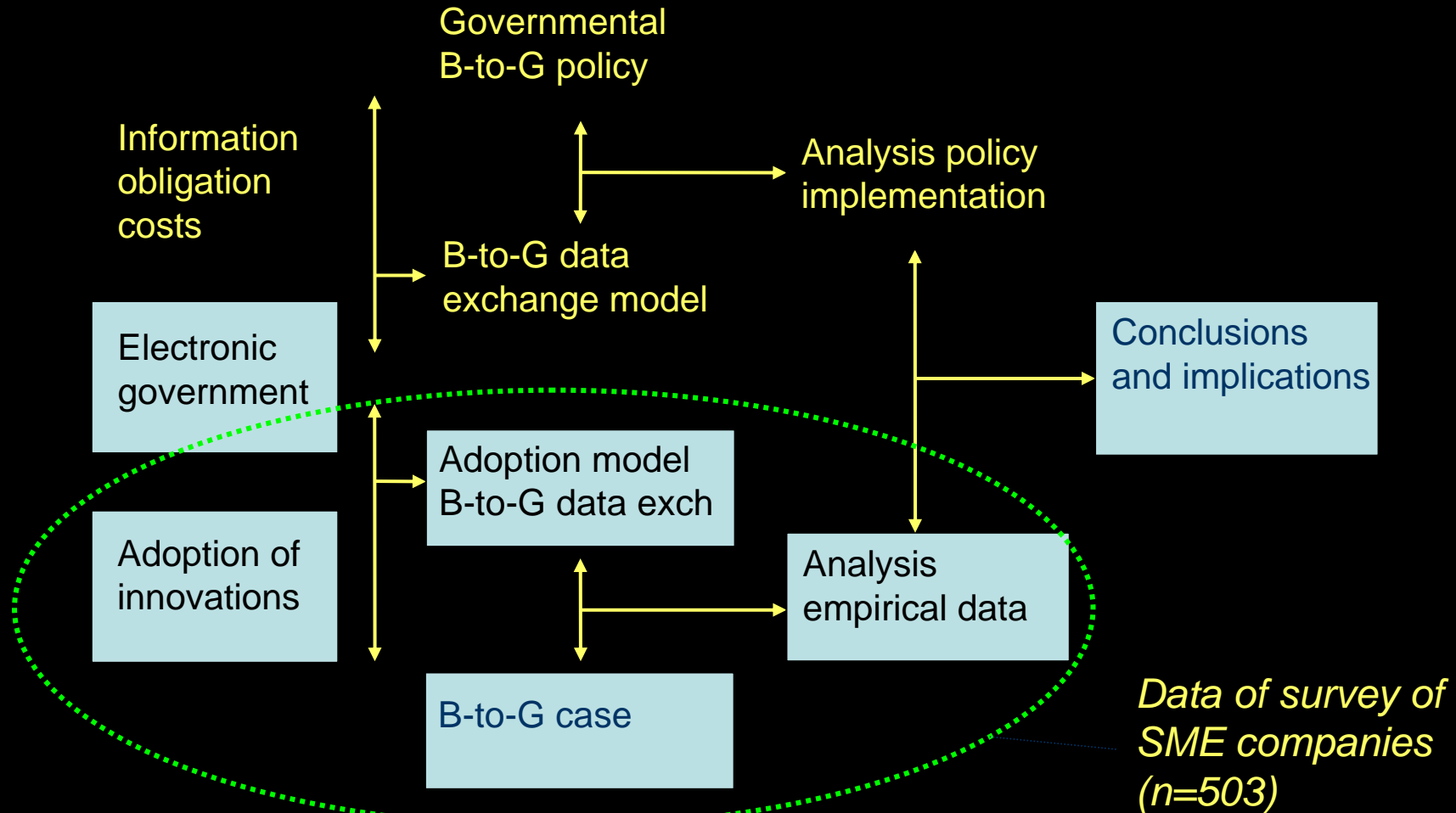
- *What is the role and contribution of B-to-G electronic data exchange with respect to the reduction of the administrative burden for businesses?*

Relevance:

- Administrative burden hampers economic growth
- Unpredictable adoption of B-to-G electronic data exchange
- Lack of scientific theories and models
- Hardly any empirical data available



Research Paper

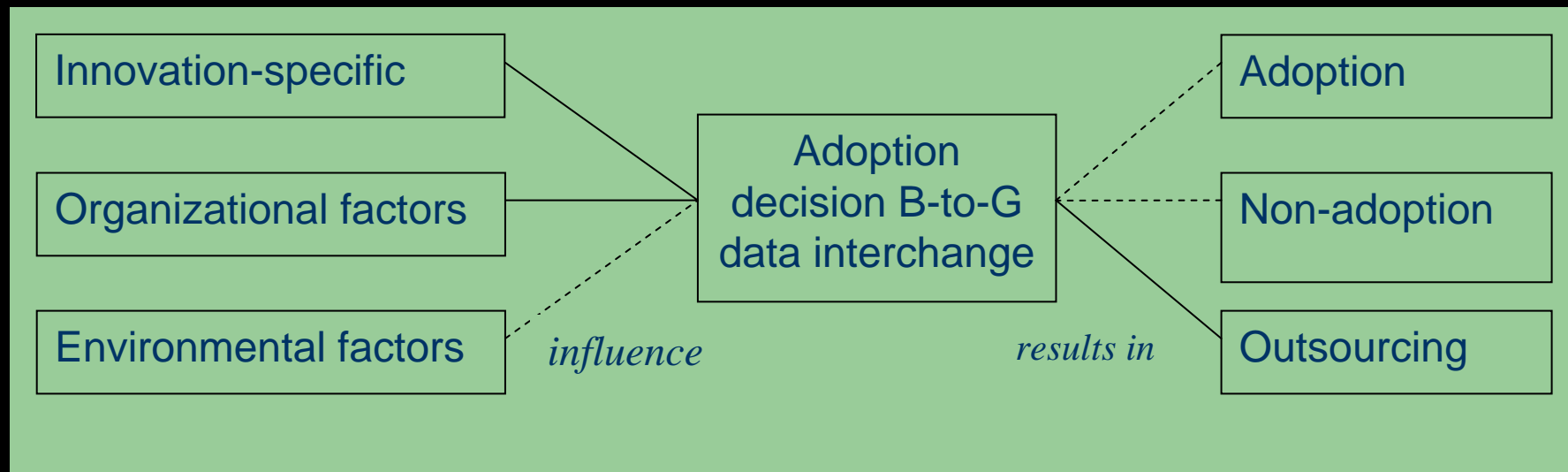


Theoretical Background

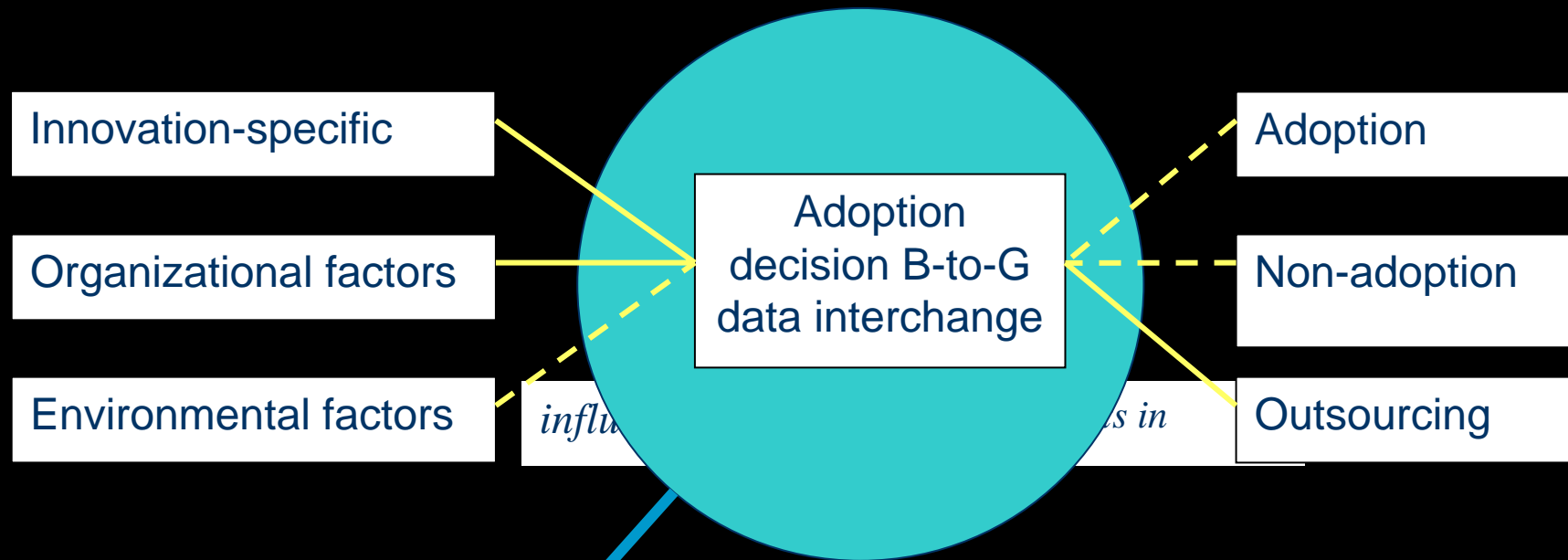
1. Information obligation costs
 2. Electronic government
 3. Adoption of innovations
 - ◆ Diffusion and Adoption of innovations (Rogers)
 - ◆ Application to EDI (Chwelos, Henriksen, ..)
- *Little or no research related to e-government data exchange applications*

Data of survey of SMEs (n=503)

Research design



Conceptual Models



Zoom in on B-to-G data interchange

Results (1)

Medium of transportation:

- 61% of the businesses prefers websites/forms as the *electronic channel* with government, whereas 23% prefers electronic data interchange
- Businesses have a *positive perception* of the possible benefits of B-to-G data interchange applications
 - ◆ Larger businesses have a more positive perception
 - ◆ Complexity hinders smaller businesses
 - ◆ IT experience is a discriminating factor



Results (2)

Intermediary services:

- Small companies seem to have *more tendency to outsource* than larger ones
 - ◆ Businesses that already outsource have a tendency to outsource more
- *Legal obligation* of the use of B-to-G data exchange systems:
 - ◆ seems to stimulate the outsourcing of this exchange
 - ◆ stimulates the emergence of new intermediary service providers

Conclusions...



- E-government efforts to reduce the administrative burden by means of B-to-G data exchange applications *are hardly effective*:
 - ◆ positive perception of B-to-G edi but poor adoption
 - ◆ efficiency benefits depend on (back office) integration
- Intermediary parties play *an important role* in the realisation of e-government objectives
 - ◆ electronic integration effect: (small) businesses expect professional intermediary parties to realize cost benefits
 - ◆ not fully recognized in e-government planning

Discussion

Is competition between intermediary parties (the market) a better instrument to reduce the administrative burden than the introduction of e-government data exchange applications (hierarchy)?



Conclusion

- We need a proper methodology that enables improvement of the governments efficiency and effectivity
- We need empirical data that helps to identify the real problems



Where can you find us



vanEngers@uva.nl
www.LeibnizCenter.org

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