



Jinan University (Zhuhai Branch) PRC

DDE -

Directed design of enterprises

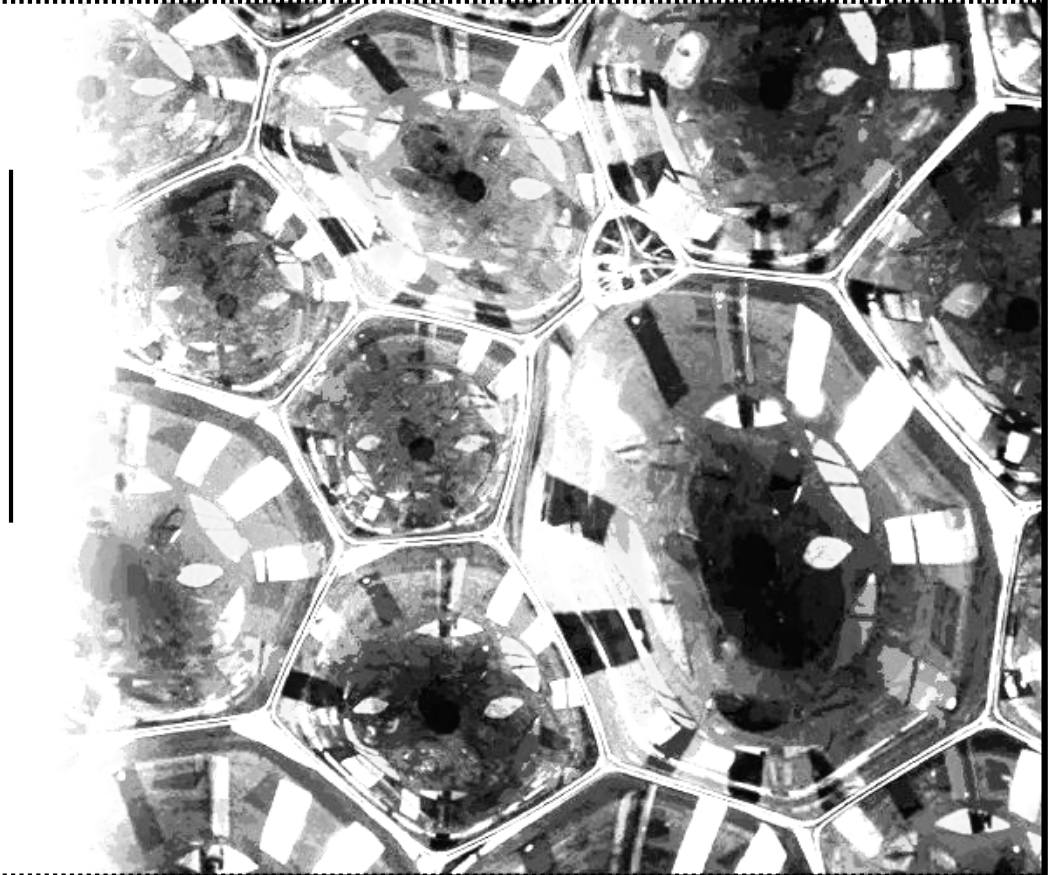
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41st WCARS 2017



暨南大學
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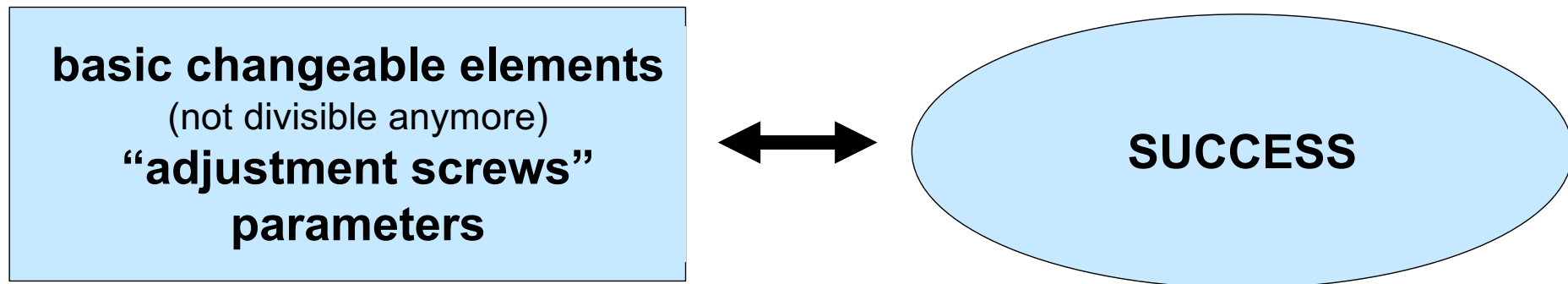
Introductory remarks



Explore Your Business. Design Your Enterprise. ■

“Missing Link”

between



of an enterprise





Introductory remarks

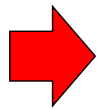


Explore Your Business. Design Your Enterprise. ■

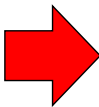
Closing this gap is the prerequisite for complete and consistent diagnosis and design (of enterprises).

“Adjustment screws” are the real sources for failure or success.

Only on this lowest possible level we can find an satisfying answer to the questions



What do we really have to do, in order to turn a company into a successful enterprise ?



What are the real reasons for problems ?



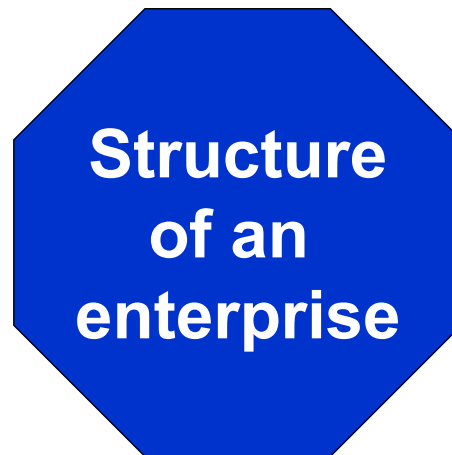


Introductory remarks



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The basic changeable elements in its entirety and its interdependencies we define as the



The basic changeable elements are the characteristics of the structure.





What is DDE?





What is DDE ?



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... a parameter based model, IT system and basic instrument for

- analysis
- diagnosis
- design and
- organization development and change management

of enterprises and its performance evaluation

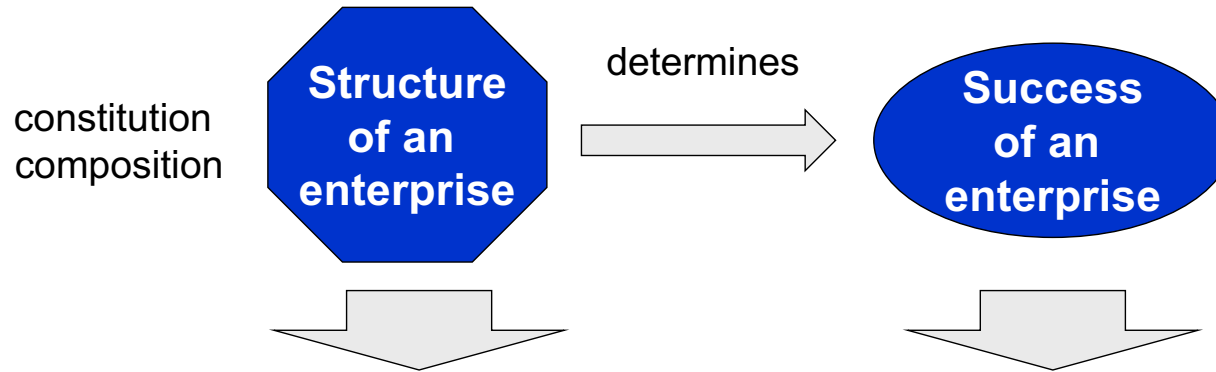
- comprehensive
- consistent
- holistic
- flexible
- transparent
- showing verifiable results



Basic idea



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- as a combination of (structural) characteristics / features
- broken down / divided in 5 domains (which cover in a non overlapping way all aspects , tasks and action fields of an enterprise)
- hierarchically organized.

- External recognition
- effects
- Image

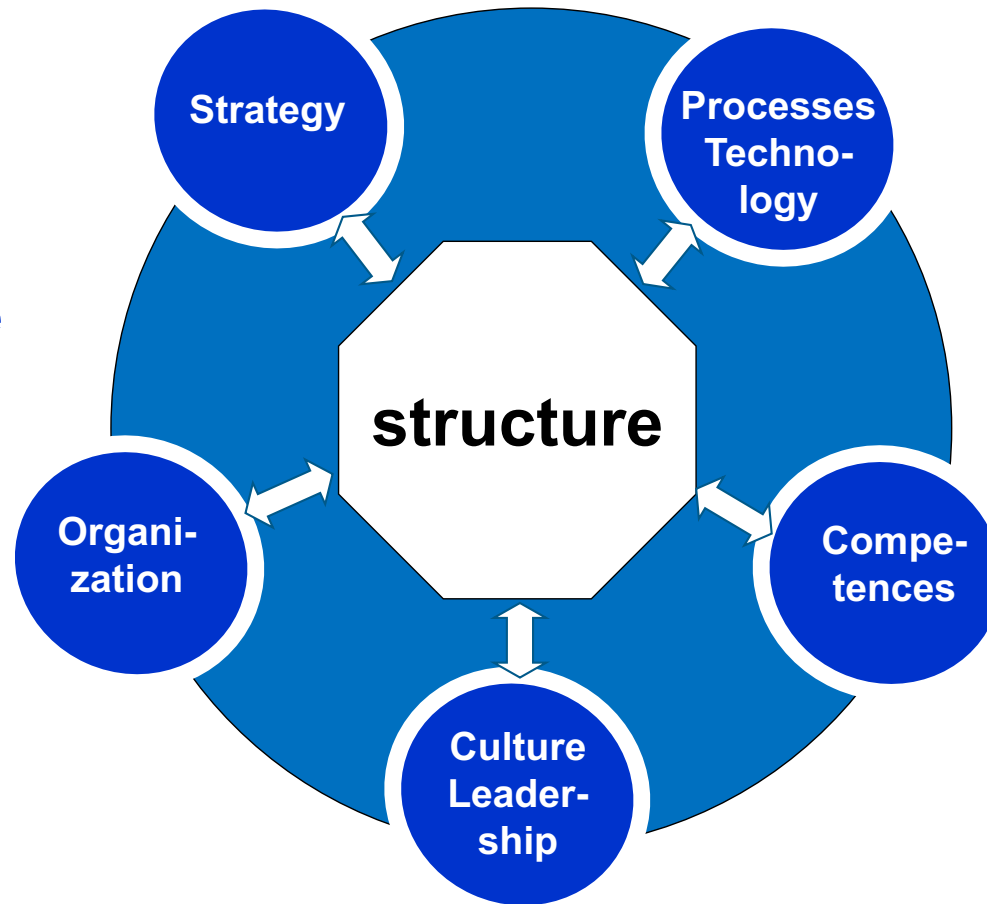


Basic domains of an enterprise



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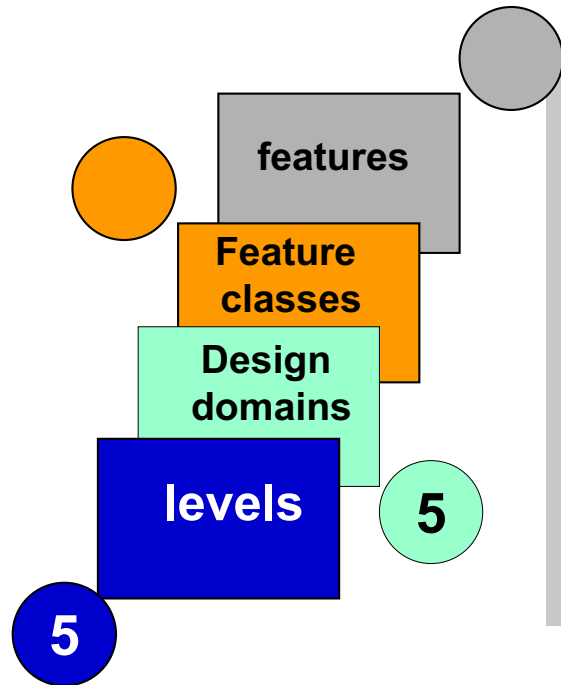
Enterprise



The characteristics and its (hierarchical) order



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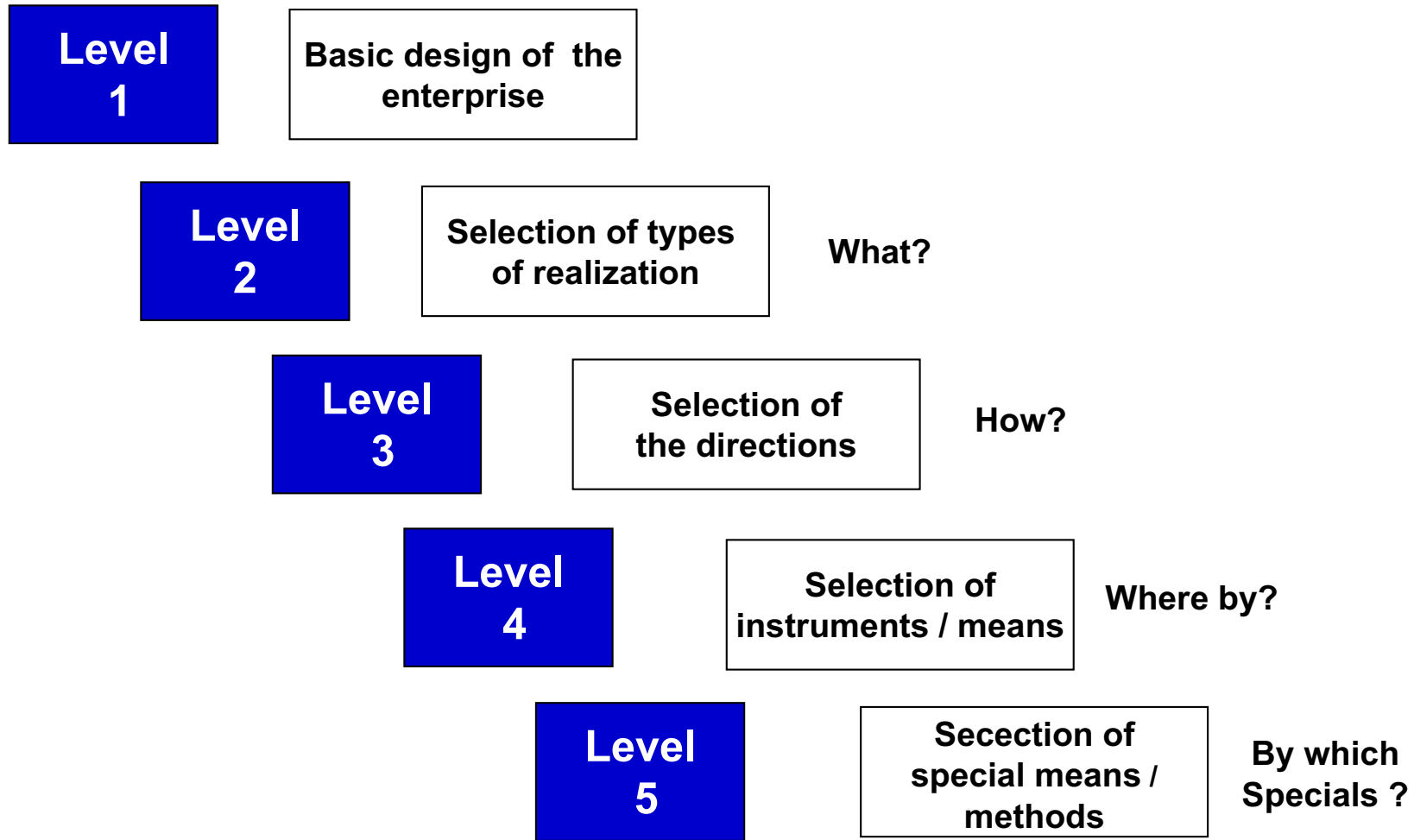
some hundreds
hierarchically structured characteristics / features

**disjoint, not overlapping as a
condition sine qua non**

permanently,
maintained, improved, extended
(learning System)



The 5 levels of the structure





Basic approach



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- **The structure of an enterprise is not / can not be arbitrary**
- **"Structure follows strategy" – follows the business model**

and

- **There must be something stable in which all the
Agile / 4.0 / BD / Digital transformation / Learning machine...
is embedded in**

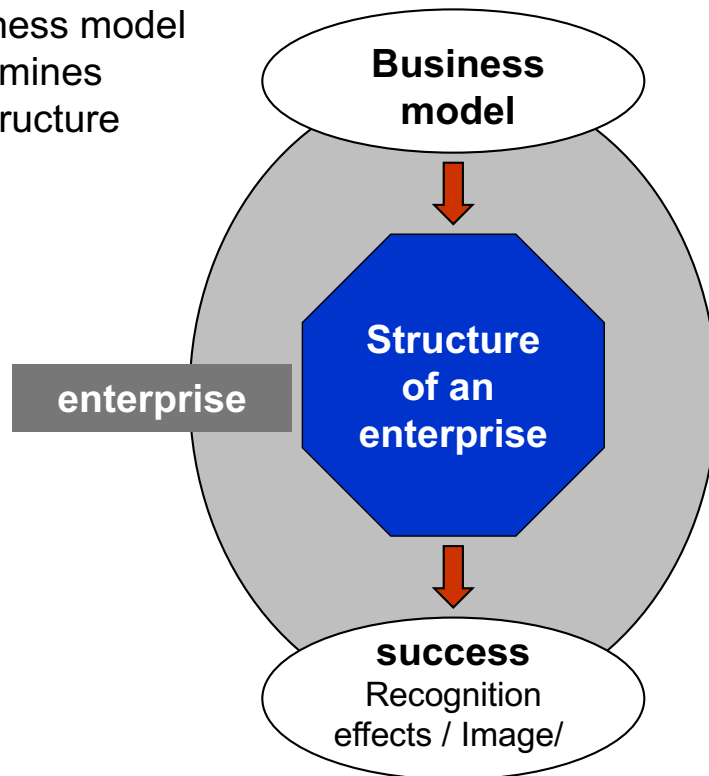


Basic logic



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The business model determines the structure



DDE provides about 400 characteristics in order to define the business model – the determinants of the structure

- divided in two levels and a certain number of dimensions and classes

and

- hierarchically organized.



The business model



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Level 1

To be defined /selected
Purpose and characteristics of an enterprise
Basic managerial decisions

Level 2

To be identified/explored/selected
Business characteristics
Exploration of typical / branch typical rules and behaviors

Business Model

The determinants of the structure

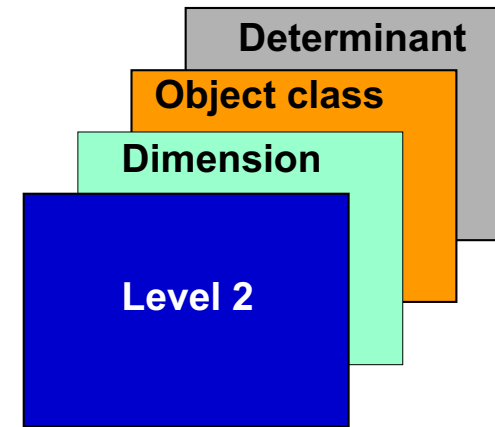
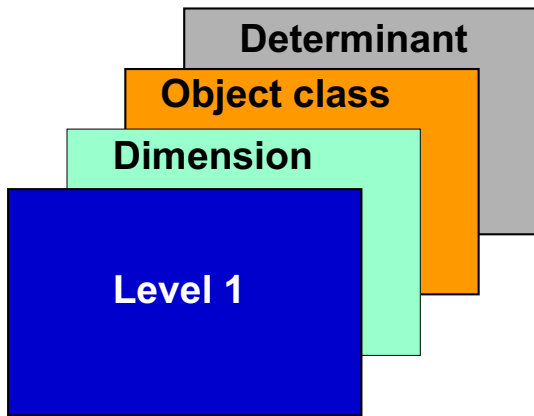


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Purpose and characteristics of the enterprise

Structure Requirements

Business characteristics



13 Dimensions / categories of characteristics of the Enterprise / strategic business unit (SBU)

15 Dimensions / categories of the business characteristics





How does DDE work – basic assumptions



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It is possible to describe all conceivable structures by a limited number of definable, discrete and non-overlapping characteristics.

It is possible to describe the entirety of all conceivable business models by a limited number of parameters. A certain business model corresponds to a certain combination of these parameters

Among the large number of possible structures of an enterprise there is one which is the best (the optimal one) for a defined purpose of the enterprise and a given environment.



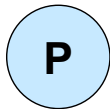
The qualities of an enterprise



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The link between structural characteristics and success requires the following qualities of an enterprise:

Properties



The 15 properties of an enterprise

represent its capabilities caused by the characteristics of its structure

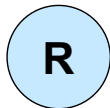
Performance



The 10 performance / behavior categories of an enterprise

represent the way the enterprise acts – its behavior – enabled by its properties

Recognition (success)



The 10 external Recognition classes

represent the success of an enterprise achieved by its performance





The CPPR model



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Together with the characteristics we formulate the as the core element of DDE the

CPPR Model

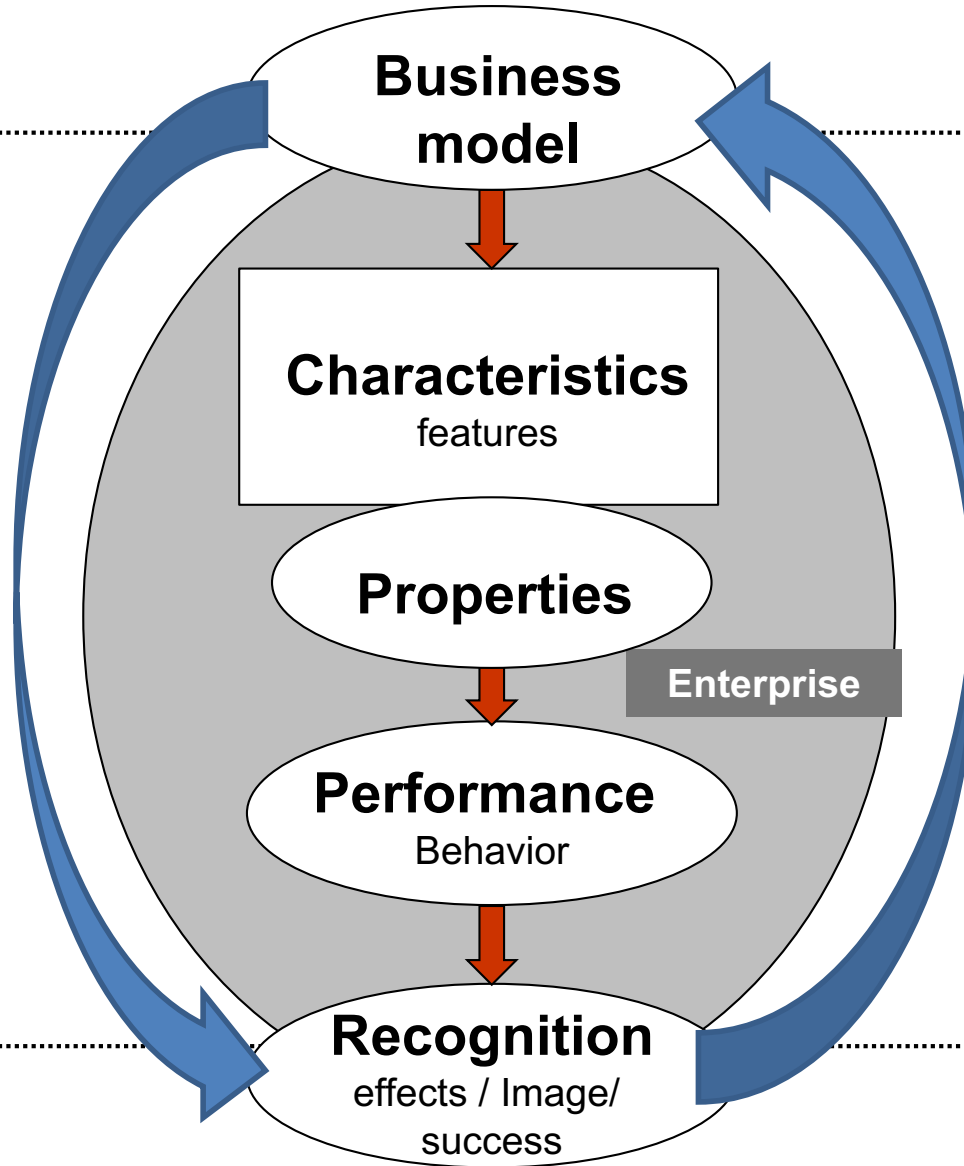
The CPPR Model is the complex harmonious interaction between

Characteristics
Properties
Performance
Recognition

of an enterprise.



Basic logic

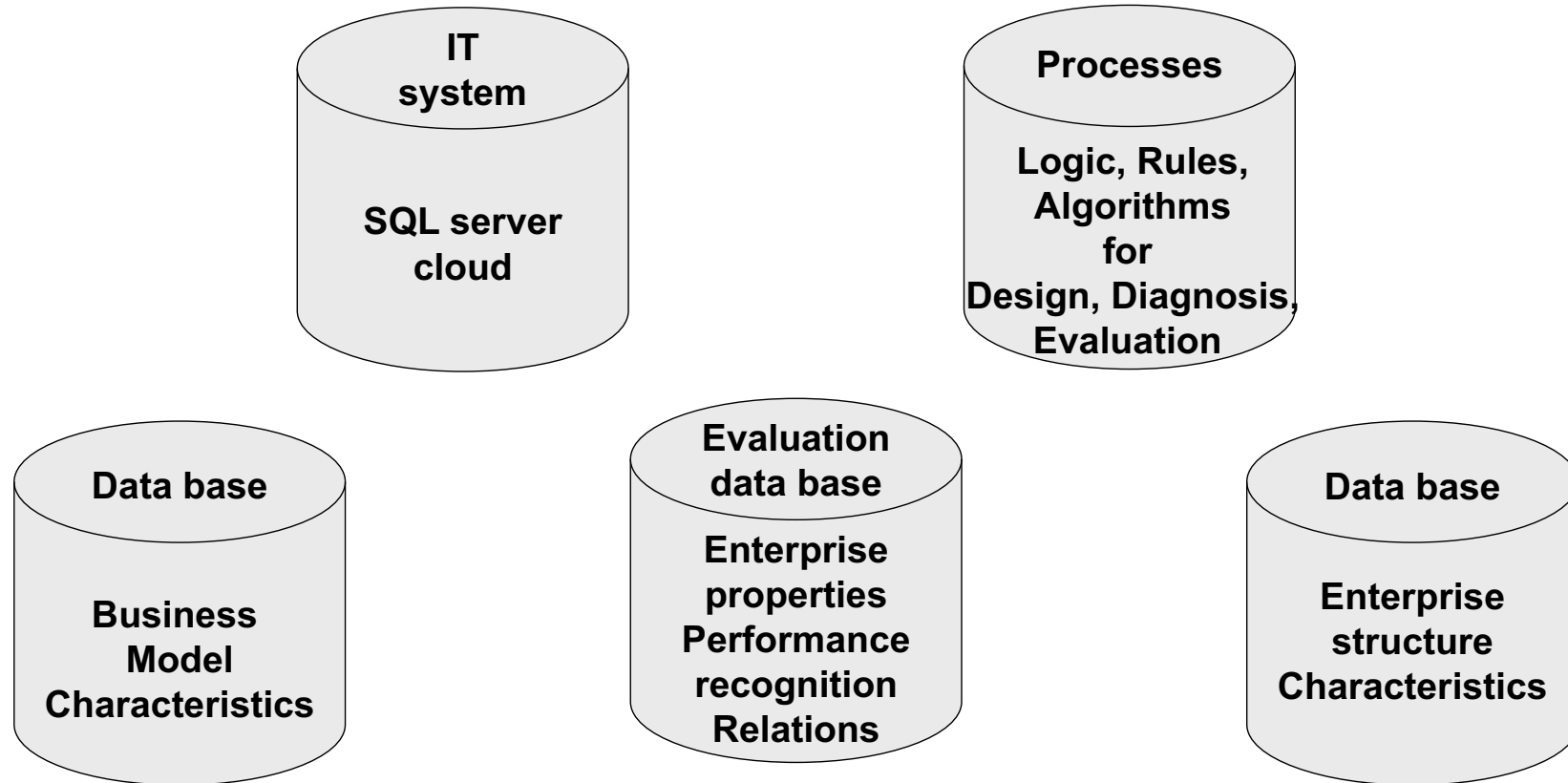




The "pillars" of DDE



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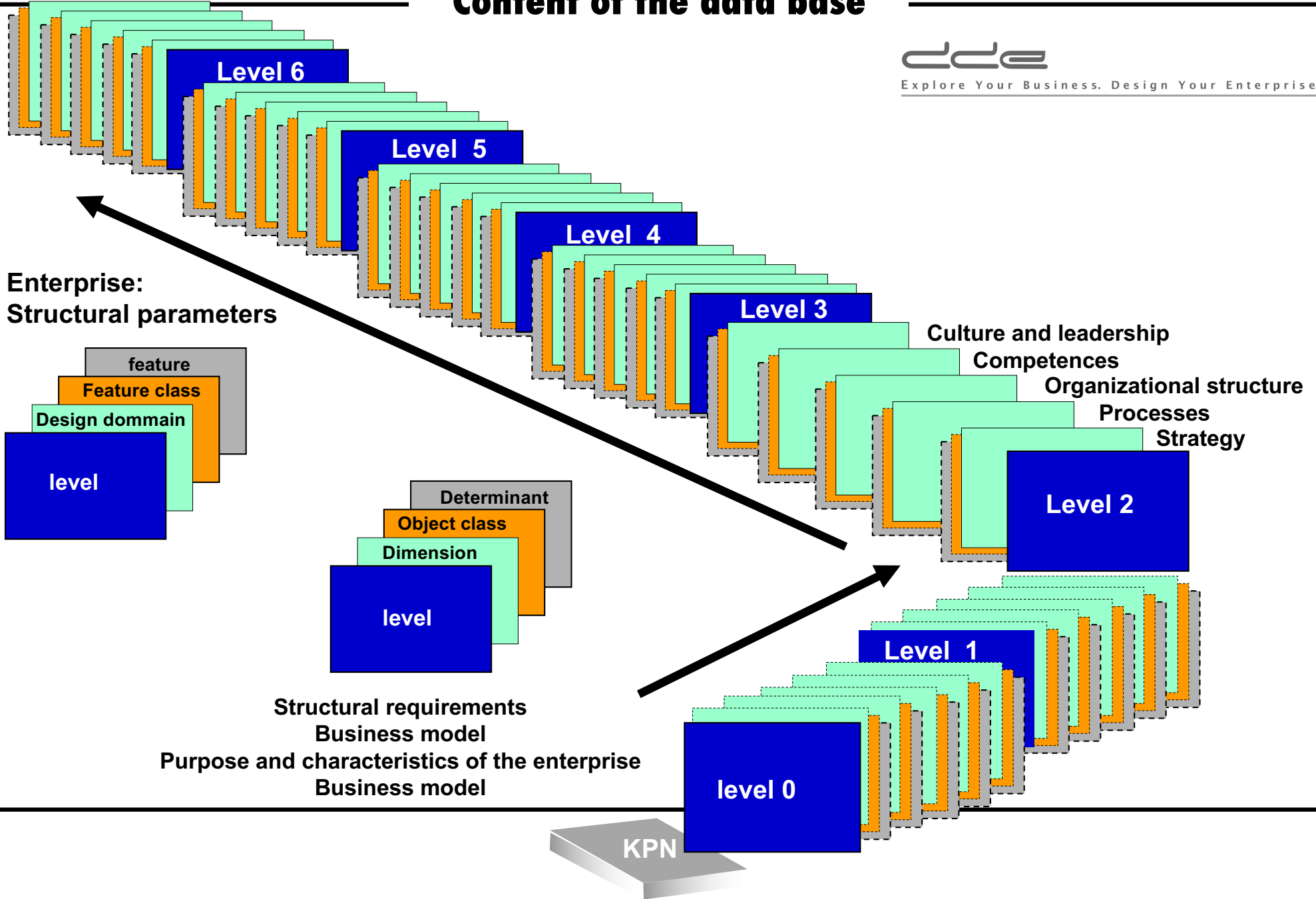




Content of the data base



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Diagnosis and design



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Each application is a

**Guided selection
process**

...selection of characteristics from the entire available set of hierarchically organized characteristics – business model and structure

...according to certain rules.

Current status: 300 characteristics for business models, 3000 characteristics for enterprise structures



Overall process / application logic



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This decision

Purpose of the enterprise

determines the enterprise characteristics

Enterprise characteristics

as well as the business characteristics

Business characteristics

This determines the features

Features of the dimensions

which generate the optimal properties for the defined purpose

Properties of the enterprise

as the basis for the best possible management / behavior

Performance (Erfolgsfaktoren)

Evaluation / scoring

Structural requirements
Business modell

Structure of the enterprise

Representation/
Behavior of the enterprise





Performance Evaluation and Learning



Evaluation



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The elements and the basis of the evaluation system (scoring model) are:

- 1** Weighted demand of properties (of the business model)
- 2** Degree of fulfilment of the properties by the features
- 3** Degree of fulfilment of the performance by the properties
- 4** The contribution of the performance categories to the categories of (external) recognition / effects



1		Enterprise properties	
		E_j	
Business model features	M/GM_i	g_{ij}	

2		Enterprise properties	
		E_j	
Structure features	M/US_k	e_{kj}	

3		Performance-category	
		P_l	
Enterprise properties	E_j	p_{jl}	

4		Recognition class	
		$W_{l'}$	
Performance category	P_l	$w_{ll'}$	

mit:



1

$E_j = \text{property } j$
 $M/GM_i = \text{characteristic } i \text{ of the business model}$
 $g_i = \text{weight of } j \text{ by the M/GM feature } i$

2

$E_j = \text{property } j$
 $M/US_k = \text{feature } k \text{ of the enterprise structure}$
 $e_{ik} = \text{fulfillment degree of property } j \text{ by feature M/US } k$

3

$E_j = \text{property } j$
 $P_l = \text{Performance-category } l$
 $P_{jl} = \text{fulfillment degree of Performance-category } l \text{ by property } j$

4

$P_l = \text{Performance-category } l$
 $W_{l'} = \text{recognition class } l'$
 $w_{ll'} = \text{fulfillment degree of recognition class } l' \text{ by performance category } l$

Case study

	Utility of the structure	Quality of performance	Quality of recognition
Original situation	7	173	3 639
„Optimal“ structure	52	1 099	23 012

According to the evaluation algorithms





Learning



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- ❖ Big data / machine learning – improvement of the design of the business model
- ❖ Improve / extend the data base
- ❖ Identify and define dominant solutions
- ❖ Faster adaption/ change of the structure – Selection of dominant sub-structures / partial structures by using back propagation
- ❖ Extend Constraints / recommendations

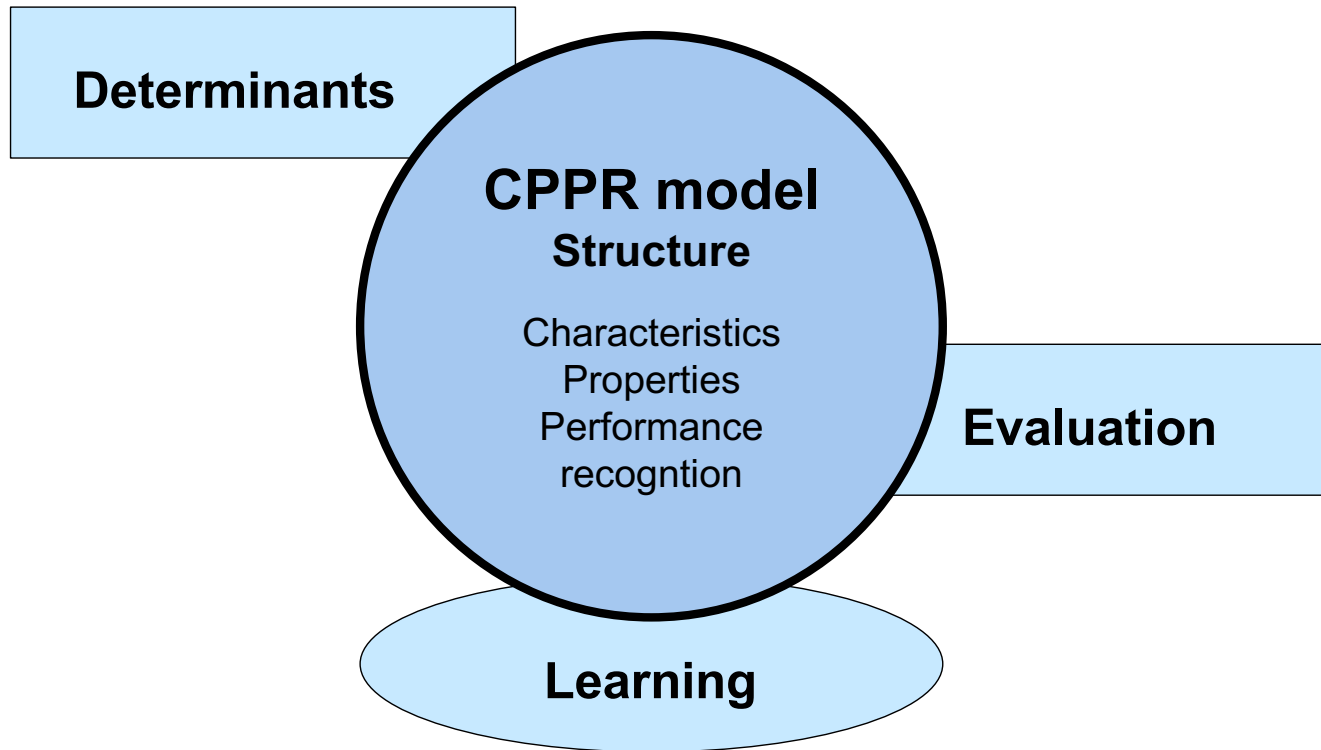




Entire system



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Software Application





DDE provides ...



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... a holistic system approach for analysis, diagnosis and design of the enterprise

- ▶ continuous adjustment and improvement of the structure of an enterprise
- ▶ systematic simulation of alternatives by parameter variation for what reason ever or from whatever cause
- ▶ evaluation (scoring) of status, alternatives and changes
- ▶ a "learning" structural logic



Application



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DDE (software) provides

- “simultaneous - successive processes” (algorithms) for
 - diagnosis (top down, bottom up)
 - forward-oriented design
 - backward-oriented design (reverse engineering)

including the evaluation of the respective results

- and can be used as a

“search machine”

benchmark instrument

training program



Application



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The starting point (point of entry) can be

**every position within
the hierarchy
of characteristics**

depending on the task / the question / the problem the leaders of a company face resp. want to get answered or resolved.

The logic of DDE requires a complete pass through the hierarchy from the starting point!

