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The application of the Value Benefit Analysis in the development of property enterprises and property service enterprises.

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Abstract

Based on the theoretical idea of the Value Benefit Analysis is this the development for the special situation to have the necessity to find decisions regarding the design of property enterprises and property service enterprises. This development considered various former theoretical approaches. So is considered the calculation of profitability (Oppitz, p. 379 ff.), multiple-attribute utility analysis (Keeney, p. 132 ff.), the value benefit analysis in urban development's (Kroes, p. 25 ff.) and last but not least the systems engineering approach (Zangemeister, p. 89 ff.). At this the main point is to bring the specific process variables in accordance with the general ideas and concepts of the Value Benefit Analysis. With a specific approach the management would be able to find decisions on a consistent base.

Key words

Value Benefit Analysis, property enterprises, property service enterprises, calculation of profitability, multiple-attribute utility analysis, key elements, target trees, functional parameters, primary benefit, secondary benefit, rating model structure, relevance value

1. General view

In benefit assessment of property enterprises and property service enterprises, their functions and properties in use[2] are the primary criterion:

> The *benefit value of property enterprises and property service enterprises* is defined by their fitness for intended purpose in use by demander or user. The value measure reflects individual perception and individual assessment by the natural persons regarding how far they are convinced that the multivariate properties of the property enterprise and property service enterprise are in line with the desired purpose.

Consequently, the benefit value of the enterprises and services in practical use may be elevated to a limited extent only from the empirical and emotional level of individual assessors to a rational level and assigned a descriptive numerical value. In legal terms all people are natural persons. Although in benefit value assessment, the judgment is delivered by a unique personality with both emotional and rational dimensions, the judgment is determined to a significant extent by the person's ownership status in the property/property service enterprise. Hence the criterion of strength of the judgment in its subjective relevance is identifiable with applicable ownership/user status:

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[2] In pertinent German expert sources, two terms are used synonymously - "Gebrauchswert" and "Nutzwert".

The potential seller or demander is either a natural person acting with strong emotional engagement on its own behalf or a representative with executive authority and a rational stance to benefit value who

- Has been granted power of attorney and performs the benefit value assessment of the services and enterprises in its capacity as expert with specific competences and experience. The perspective applied is that of a natural person who qualifies for the function based on adequate professional practice and has been officially assigned to the function based on a proof of expertise and competences acquired by training and education (cf. § 407 Civil Procedure Code (ZPO)).

- Performs work on a contractual basis on behalf of the potential seller or demander and represents in this capacity a corporate body[3]: The corporate body may be either an association of persons or a special-purpose fund recognised as legal entity by law. The entity operates via elected or appointed representative bodies based on articles of constitution of such bodies. Registration in business registry is through all management board members or CEOs authorised to represent the entity as applicable. Individual perspective of the persons on benefit value only broadly matches benefit value assessment by owners.

The core criterion to explore is sustainability of benefit value primarily from the market perspective with individual user perception a second criterion only as the level of perceived benefit and usefulness by user is attached more or less strongly to average perception that develops in the market.

2. Value Benefit Analysis

The advantage to value benefit analysis for property enterprises and property service enterprises is in compiling in a methodical approach a precise report on the quality status of property maintained by the enterprises. The method typically includes direct correspondence between the demander, potential buyer, lessee or tenant and the potential seller, owner, agent or administrator until all service and property-related criteria are filled with actual implementation status data and included in the analysis and pertinent documentation. This is particularly worth mentioning with regard to caveat emptor provisions under civil law in property transactions on known defect of title on part of

- The demander: "(1) Seller is not liable for a defect of title if the buyer is aware of the defect at the time of effective purchase transaction." (cf. § 439 Civil Code),

- The potential seller: "(1) Seller is not liable for a defect of item subject to sale if the buyer is aware of the defect at the time of effective purchase transaction. Where the

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[3] Under private law, corporate bodies comprise e.g. stock corporations, registered cooperatives and associations, limited liability companies and joint-stock companies partners or associates in which generally are not subject to personal liability. Corporate bodies are not subject to criminal liability, hence not recognised as entities under criminal law but their representatives are such as their supervisory boards with individual member liability or persons in top managerial functions (cf. § 14 I No. 1 Criminal Code (StGB) and special provisions of the Administrative Offences Act (OwiG) (cf. §§ 29, 30 OWiG)) under shared liability. Corporate bodies under public law are institutions or funds under public law as independent entities with pertinent rights and obligations beyond the scope of public administration duties and further sc. corporations under public law (German: Körperschaften des öffentlichen Rechts) that comprise e.g. municipalities, public savings banks and government authorities. The bodies may be entitled to perform sovereign functions and are subject to government supervision by competent administrative authorities.

buyer is unaware of a defect as defined in § 459 Art. 1 Civil Code due to gross negligence, the seller is liable as far as not having made a pledge on the absence of the defect only where the defect has been concealed with malicious intent." (cf. § 460 Civil Code) and of vital significance in dispute settlement procedures.[4]

The value benefit analysis for property enterprises and property service enterprises should enable the appraiser to determine suitability of the property concerned applying a multidimensional target system and specific target preferences. The assessment relies on a scoring and/or rating model that supplements and completes the analysis of capitalized value. The method amounts to a multi-attributive assessment of benfit[5] as a complementary approach to dynamic investment analysis as opposed to alternative valuation technique (cf. Fig. 1).

Fig. 1: Key elements of value benefit analysis

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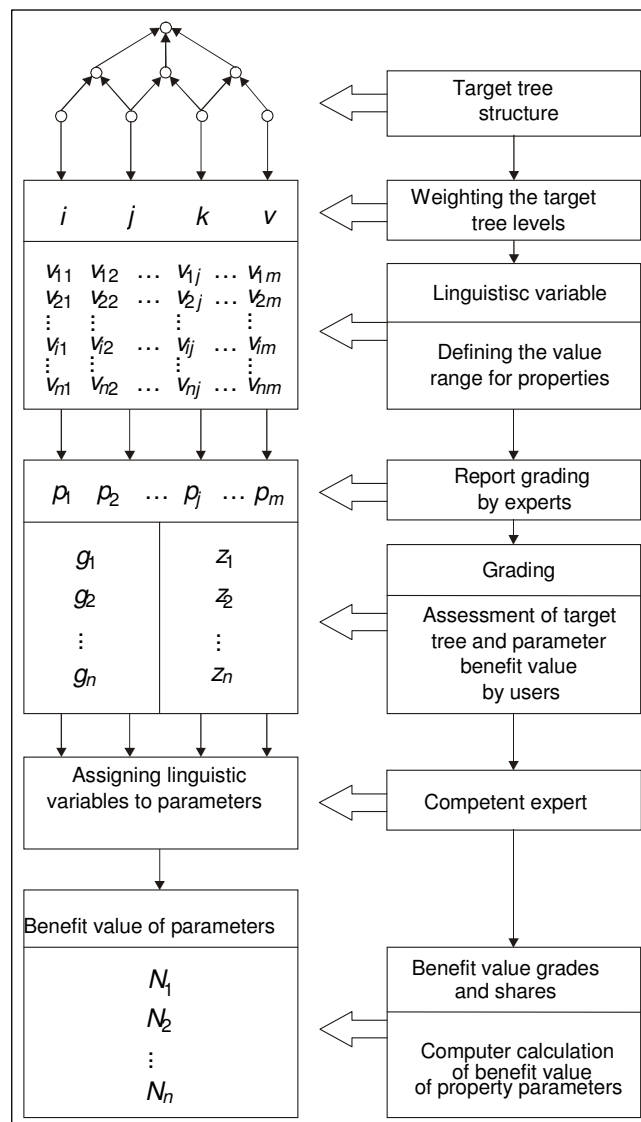
[4] The court appoints where it lacks specific competence a competent expert to compile expert opinion compliant with Civil Procedure Code (ZPO) (cf. §§ 402-414 Civil Procedure Code: a).
[5] Accordingly, the process of determining benefit value amounts to a system analysis of implementation status of any relevant properties of a property enterprise/property service enterprise.

The heuristic assessment covers a number of functions and properties of property enterprises and property service enterprises and their implementation status (cf. Oppitz 1995, p. 379/390) with hierarchic breakdown according to structural components[6] into:

1. Target trees for key components of property enterprises and property service enterprises;

2. Reports on modular structure of the key components;

3. Functional and property parameters held by the reports;

4. Implementation status of each functional and property parameter expressed as a linguistic variable including

   a) Description of implementation status of the function or property;
   b) Implementation status grade applying standardised evaluation scales and a eterministic rating including also implementation-related comments where useful.

Accordingly, the *benefit value of a property enterprise or property service enterprise* is defined by its suitability depending on particular needs as *permanent structure for residential purposes* or *commercial purposes* (cf. Table 1), or both, according to particular type of intended use.

Table 1: Usage type: commercial purposes

Mode	Types (examples)
Services	Car parks, holiday apartments
Accommodation	Hotels, boarding houses
Day-care	Sanitary, day-care facilities
Education	Schools, laboratories, monuments, galleries, passages, museums
Disposal	Sorting, recycling, waste storage
Processing	Industrial and commercial buildings
Fishing	Watercourses, lakes, ponds
Gardening	Gardening, landscape management, parkways
Trade	Ateliers, print shops, industrial parks, cold storage houses, combined use land, abattoirs, workshops
Commerce	General purpose and specialised markets and supermarkets, department stores, shopping malls and storage facilities, kiosks, shops
Tending & hunting	Groves and forests
Healing	Clinics, hospitals, rehabilitation facilities
Growing fruits	Orchards, vineyards
Physical exercise	Fitness studios, indoor swimming pools, sports stadiums, sports facilities

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[6] The "selection of criteria and their weighting and assessment principles" (Sabel, p. 60 ff.) are implemented in terms of scope and method compliant with the principle of unmistakable comparability.

Mode	Types (examples)
Learning	Academies, labs, schools
Sowing and harvesting	Fields, gardens, plantations
Sports and leisure	Arenas, sports stadiums, sports facilities
Holding venues	Opera houses, theatres, open-air stages, conference and convention centres
Catering	Pubs, restaurants
Administration	Office houses, administrative buildings
Raising animals	Pens, studs, enclosures

Depending on use, *benefit value of property enterprises and property service enterprises splits into* two levels of qualities (cf. Fig. 2).

Fig. 2: Primary and secondary benefit value

Primary Benefit Value	Secondary Benefit Value
* **User perspective** (architect or forwarder, young or elderly, Central European or South American, conservative or multicultural etc.	* **Expert perspective**
	* **General social consensus**
* **Highly delicate balance of needs**	* **Professional criteria**
* **Determines marketing success**	* **Indispensable in construction and refurbishment investments**

Direct judgement by a natural owner on available architectural, functional, psychological, social, technical and other properties of property enterprises and property service enterprises that reflects the owner's ideas on architectural, functional, psychological, social, technical and other properties of the property concerned.

Expert opinion by a competent expert who determines the benefit value based on professional criteria, or appraisal by authorised representative acting on behalf of rightful owner that reflects the owner's ideas on architectural, functional, psychological, social, technical and other properties of the property concerned.

The actual practical value of *identified benefit value* relates to its suitability in property enterprise or property service enterprise management for decision making purposes in property development and marketing activities. The actual decision making process includes apart from value benefit analysis for the property enterprise or property service enterprise also capitalized value analysis, cost analysis and operating cost analysis.

In departure from monetary value measures, value benefit analysis aims at a 'notion of quality' by determining how 'valuable', how 'useful and preferable' a property enterprise or property service enterprise is to a particular unique subject as represented by the potential or actual buyer, lessee or tenant.

While in investment analysis, monetary parameters find exclusive use, value benefit analysis employs non-monetary assessment criteria such as infrastructural, psychological, social and technical parameters that refer to quantitative and qualitative properties of property enterprises and property service enterprises in form of linguistic variables e.g. topography,

population, traditions etc., but never to monetary units. That means that carrying amounts, income figures, profits, costs, useful life, prices, asset values etc. do not have to be included in value benefit analysis.

3. Rating Model Structure

The rating model for benefit value assessment of property enterprises and property service enterprises refers to

- A defined usage mode such as "Accommodation" or "Commerce";

- A defined usage type such as "Hotel", "Boarding House", "Department Store" or "Supermarket".

Prerequisite to compiling a rating model is a characterization of the property service enterprise (cf. Table 2) and property enterprise (cf. Table 3) with detailed description and breakdown of key properties in target trees.

Table 2: Target trees for property service enterprises assigned the benefit value type "Living in Multifamily Home"

| Property	Scope
Communication	Assessment of technical equipment of property in the property service enterprise and its electronic interfaces such as Internet access, telecommunications, ideal control of supply and waste disposal equipment
Infrastructure	Connection to public supply and disposal utilities
Environment	Availability of energy saving systems, level of environmentally friendly waste disposal

Table 3: Target trees for property enterprises assigned the benefit value type "Living in Multifamily Home"

Property	Scope
Architecture	Assessment of aesthetic aspects such as design, form, proportions and of structural, material, architectural and similar components
Quality	Location assessment for property in the property enterprise or property service enterprise plus assessment of overall impression on visitor and of pertinent facilities.
Infrastructure	Access to public traffic networks, topographic characteristics, the location social status and social image.
Environment	Existing physical, chemical or biological burdens and traffic burdens such as emissions or use of materials affecting human health and the environment

A target tree should outline applicable requirements in a specific area and provide a hierarchic breakdown of pertinent properties down to individual parameters and their implementation status (cf. Fig. 3).

Target trees must be independent from each other. For designing the target trees, a pool of objective, market and stakeholder non-specific criteria needs to be developed by a competent team.

Fig. 3: Benefit value scheme for "Living in Multifamily Home"
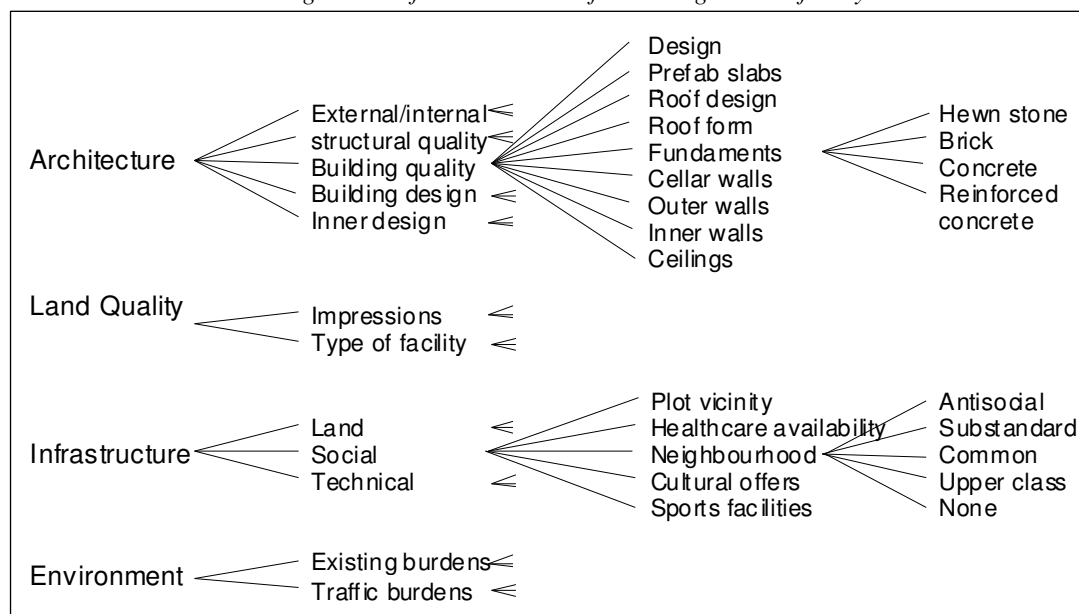
The calculation input is a grading. The grades appear as

- Target tree variable g_i: Predefined as reference variable and modifiable by buyer, lessee or tenant compliant with individual perceptions of the target tree relevance with regard to the particular usage type along with the computation model.

- Report constant p_{ij}: Predefined by competent expert in the target tree design phase as constant variables in order to ensure comparability in the assessment of report-based properties that reflect benefit values for different property items in the property enterprises and property service enterprises.

- Parametric variable z_{ijk}: Reference value suggested by competent expert and modifiable by buyer, tenant or lessee compliant with its own value perceptions.

- Linguistic variable v_{ijk}: A typically integer-based grading scale defined by competent expert[7] for purposes of indicating the implementation status of the different parameters (cf. Table 21). The grading system is particularly effective if definable using *analytical and mathematical methods* in reference to standards and regulations such as for the assessment of the number of ISDN connections or noise insulation or using *experimental methods*. Mutually excluding attributes such as *present and non-present* are assigned the values one and zero respectively. Grades for *non-measurable parameters* such as service quality or structural elements are based on *empirical assessment*.

Benefit value for property enterprises/property service enterprises is determined according to weighting of the different levels based on grades and linguistic variables; Intermediate values in the process are relevance values and benefit value shares of the different parameters, reports and target trees. Predefinable values include the number of target trees a, the number of reports in i-th level target tree b_i and the parameter in j-th level report of i-th level of target tree c_{ij}.

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[7] Grading in decimal numbers needs to be provided for in combined use and special instances. For instance the "Rooftop" parameter implies combined use of "beaver's tail ($v_{ijk} = 3$)" and "natural slate ($v_{ijk} = 4$)" tiles, with the roof covered in beaver's tail tiles and dormer in natural slates. The competent expert may define e.g. a reference value of "($v_{ijk} = 3,33$)".

Table 4: Implementation status of linguistic variables of a parameter

Door Entry Phone	**Video Surveillance**	v_{ijk}
Door bell	None	0
Intercom	External surveillance	1
Interface with ISDN	Comprehensive surveillance	2
ISDN interface with answering machines	Alarm system for security purposes	3

$$R_{ijk} = g_i + p_{ij} + z_{ijk} \cdot l_{ijk} \qquad N_{ijk} = \frac{R_{ijk}}{R} \qquad R_{ij} = \sum_{k=1}^{c_{ij}} R_{ijk}$$

$$N_{ij} = \frac{R_{ij}}{R} \qquad R_i = \sum_{j=1}^{b_i}\sum_{k=1}^{c_{ij}} R_{ijk} \qquad N_i = \frac{R_i}{R}$$

$$R = \sum_{i=1}^{a}\sum_{j=1}^{b_i}\sum_{k=1}^{c_{ij}} R_{ijk}$$

A parameter relevance value results from the addition of column results: grade g_i, p_{ij}, z_{ijk} multiplied by partial level values i, j, k. The total of all relevance values of parameters listed in rows of column N (cf. Fig. 4) indicates absolute benefit value, the result of dividing relevance values of parameters by the absolute benefit value are benefit value shares for the different parameters in column N.

The benefit share for the target tree "Infrastructure N_3", report "Social N_{32}", parameter "Neighbourhood N_{325}" and its relevance value R_{325} shall be determined based on the benefit value chart. Referring to target tree structure, a competent expert assigns the "Neighbourhood" parameter appropriate grades g_i, p_{ij}, l_{ijk}. The relevance values of benefit value R, of target tree R_3 and of report R_{32} are predefined. The chosen linguistic variable indicates implementation status "Upper class" z_{325}.

Target tree grade	g_3	=	3
Linguistic variable	l_{325}	=	5
Report grade	p_{ij}	=	4
Benefit value	R	=	1174	points
Target tree, relevance value	R_3	=	269	points
Report, relevance value	R_{32}	=	87	points
Parameter, grade	z_{325}	=	3	

Target tree, benefit share	N_3	=	22.91	%
Report, benefit share	N_{32}	=	7.41	%
Parameter, benefit share	N_{325}	=	2.13	%
Parameter, relevance value	R_{325}	=	25	

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Fig. 4: Relevance value and share in benefit value for a target tree parameter

Target Tree $(i = 3)$	Report $(j = 2)$	Parameter $(k = 1)$	Lingustic Variable v_{ijk}	N [%]
3 Infra-structure	2 Property 4 Social 3 Technical	4 Statutory fees and charges 5 Holiday and leisure options 2 Plot vicinity 1 Healthcare availability 5 Neighbourhood 3 Cultural offers 4 Sports options	0 Antisocial 1 Substandard 2 Common 3 Upper class 4 None	
$R_i = i \cdot g_i = 9$	$R_i = j \cdot p_j = 8$	$R_k = k \cdot z_k = 5$	$R_{ijk} = R_i + R_j + R_k + v_{ijk} = 25$	
$g_i = 3$	$p_{ij} = 4$ $N_{ijk} = \dfrac{R_{ijk}}{R}$	$z_{ijk} = 5$ $R = 1174$	$l_{ijk} = 3 \quad v_{ijk} = 3$ $N_{ijk} = \dfrac{25}{1174} = 2{,}13\,\%$	

A *procedural sequence* is recommendable in benefit value assessment:

- Specifying benefit value mode and type;

- Defining target trees, report properties and parameters;

- Assigning linguistic variables including comments to the parameters[8];

- Integrating target trees with the reports, parameters and linguistic variables;

- Determining the v_{ijk} values of linguistic variables;

- Rating by means of grades according to hierarchic levels i, j, k;

- Grading target trees, reports and parameters g_i, p_{ij}, z_{ijk};

- Calculating relevance values, shares in benefit value and actual benefit value.

However, the process of determining benefit value compliant with the procedural sequence splits into expert and user appraisal respectively of the property enterprise and property service enterprise.

The weaknesses of benefit value assessment are system-related. The assumption in the practiced addition of relevance values R_{ijk} to benefit value is that the parameter grades are generally measurable on a standardized basis and the target criteria are independent from each other in terms of benefit effect. The output is potentially highly susceptible also to the effects of weighting the target criteria and setting relevance values of parameters based on individual judgment.

Purpose of the heuristic method of value benefit analysis for property enterprises and property service enterprises is support to systematic decision making processes. Credit to its practical reproducibility and verifiability, the method is a suitable complement to investment

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[8] The competent expert may e.g. leave on digital input of decimal grades a comment in the database as a reminder for later reference.

analysis in order to simplify decision making processes in the assessment and selection of complex alternatives. The method simplifies analyses in decision making instances that include a multitude of targets.

4. Data Collection and Benefit Value Trend

In order to effectively place the property enterprise and property service enterprise in the market and generate sufficient yield, the tasks of company management include researching *market chances*, conceiving *strategies* and exploring *planning* options in order to determine what benefit values and how are to be offered in the market, what is the relevant demand, who are the potential buyers, lessees or tenants as focus groups and how is the offer, i.e., advertising, prices, services etc. and the sales strategy to be designed.

The data collection process for value benefit analysis purposes is an integral part of *market research*. The latter deals systematically either on a continuous or spot basis with market conditions and the market environment. The information extracted in the process is processed by means of scientific techniques and made available to the management.

A partial area of market research is *market analysis*. The scope of market analysis is examining specific areas or niches of the market over predefined examination periods plus *market monitoring* over periods of time with evaluation of new developments in the market. Both the research areas are meant to aid the value benefit analysis.

The data collection processes in market research and particularly in on-demand research portfolio of tools of which includes benefit value analyses are:

- *Field research* with the purpose of statistical data collection in statistical samples through *primary data gathering processes*. Pertinent *methods* are:
  - Experimental surveys;
  - Observations;
  - Surveys of persons or groups of persons (panels);
- *Desk research* or *secondary data gathering processes* comprising systematic research and assessment of relevant publications in the data gathering effort.

In order to determine secondary benefit value, a panel analysis appears viable as a *competent sample*: instead of an entirety, a group is chosen compliant with market policy and sociographic criteria that is to perform an assessment of properties of property enterprises and property service enterprises. The competent expert performing the analysis surveys the opinion groups that include local valuation boards for property enterprises and property service enterprises, individual estate agents for property enterprises and property service enterprises and CEOs of property enterprises and property service enterprises over longer periods of time either in person, in writing or in long-distance voice contact on property enterprises and property service enterprises of identical type and with identical purpose. The assessment mainly relies on mathematical statistics procedures.

The systematic data collection and data evaluation processes in form of secondary benefit value analyses for the different types of property enterprises and property service enterprises should be a vital task of agent associations, with the process output enabling the associations to compile and make available to their members professional references to base competent decisions on in the decision making effort. This applies not just to erect exploration of the markets but also to educated approach to assessment of rental price mirrors, identification of fair market values etc. Prerequisite to projections of structural, technical and social development of the property enterprise and property service enterprise market is familiarity

with trends in benefit values for different types of land. This allows to draw conclusions on meaningful development targets for establishing and improving property enterprises and property service enterprises, on sales chances for property enterprises and property service enterprises with added benefit values and on likely improvement cycles that can all be entered in functional specification guidelines.

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Summary

Based on the theoretical idea of the Value Benefit Analysis is this the development for the special situation to have the necessity to find decisions regarding the design of property enterprises and property service enterprises. This development considered various former theoretical approaches. So is considered the calculation of profitability (Oppitz, p. 379 ff.), multiple-attribute utility analysis (Keeney, p. 132 ff.), the value benefit analysis in urban development's (Kroes, p. 25 ff.) and last but not least the systems engineering approach (Zangemeister, p. 89 ff.). At this the main point is to bring the specific process variables in accordance with the general ideas and concepts of the Value Benefit Analysis. With a specific approach the management would be able to find decisions on a consistent base.