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LCC-DATA

Life-Cycle-Costs in the Planning Process. Constructing Energy Efficient Buildings taking running costs into account

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WP3 - Deliverable D 15

Common recommendations for data input concept improvement

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Definitions and Abbreviations

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None

Abbreviations

BCIS	Building Cost Information Service, United Kingdom
D	deliverable
EPBD	Energy Performance Building Directive 2002/91
LCC	Life Cycle Costing
WP	work package

1 Executive Summary

Cost data collection and input process is a critical field of work which defines the quality and validity of the database outputs. The quality assurance of the cost information needs to be intergraded into the common working practice and database users need to be trained in order to expand their knowledge on life cycle costing. A systemised process of data collection, input and analysis needs to be introduced in order to support the market for benchmarking and LCC purposes.

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2 Introduction

2.1 Aims of this work

This study aims to identify the ground of improvement in terms of data input concept. Different countries, organisations, individuals, might follow their own system of data collection and storage as no standardised process exists at national or European level. This fact impedes the efficiency on cost analysis and increases the risk of quality assurance failure.

LCC-DATA project aimed to urge and commence the procedure of cost data collection, to raise awareness and encourage continuous involvement of the building industry market. The data collection process (WP3) required a significant amount of work and time in order to be established and operate. Strong cooperation with relevant key actors, cost data reliance and confidentiality assurance, establishment of a common cost classification system and data collection and input systems are the main working axis which required consistency and continuous effort. Therefore, LCC DATA project aimed to ‘test’ this process and, based on the feedback from national and local meetings, to provide recommendations for improvement either on the database structure or on the data collection and input process.

3 Data collection and input process

Findings from data collection and input process are described on the following sections and are considered as important for the future database expansion and development beyond the project duration.

3.1 Data collection process

After the finalisation of the database structure, the data collection process commences for the interested building market actors. This process requires a significant amount of time as it requires cooperation of different departments (administration, financial, technical), of the building owner and user – in most cases they are different and also requires relevant experience on the field. In addition to that, lack of information availability is a principle parameter which increases the time affiliated to this task.

Therefore, standards and proposed methods for data collection would ease the process and encourage potential users to adopt this process. Such findings are the following:

- A users' manual need to be produced and explain all fields of the database with examples of what is required in each field on the user interface for data collection. Contact e-mails and persons from need to be available to address any relevant queries.
- Training to new users will ease the data collection process and partly ensure quality assurance of the data collected. This training might be electronic (via the internet) or through scheduled workshops. This work might imply to high cost implications, especially if the training is to be offered across Europe, therefore, follow-up actions at national and European level need to be planned.
- Marketing of the database to new and existing users is essential in order to transfer the knowledge and experience across the market and attract more users into this process. Experience from existing users need to be exploited in order to ensure future development by keeping existing users satisfied and enriching with new members. Frequent publications on database indicators and results will encourage additional subscribers.
- Data confidentiality is considered as a main barrier for data provision and sharing. Database managers and administrators need to convince the potential users of the benefits to share cost information with other organisations, with the benefit of accessing also others information. The potential of a 'common' database and not individual to each organisation has to be explored as a benchmarking beneficial tool for all potential users. Higher fee might apply to a more detailed data access for the users.

3.2 Data input process

Data input process is the following step from data collection and requires special attention in order to ensure quality of data into the database and to avoid inaccuracies.

Data input was found by all partners as a both time-consuming and difficult process. However, a satisfactory collection of data has been made on the project, and there is evidence that the collection of data in itself generates processes within each organization to capture the information more readily. The amount of data input from

the various partners differ and this is due to the experience level, the market maturity, the availability of national standards and statistical figures, the business and building owners network societies, etc. For example in Czech Republic and in Greece, this process was rather new with no other legislative or technical standards to support this action, compared to Norway and Austria where LCC is significantly developed in the building practice. However, in all countries, the data collection and input process is considered as very difficult process which required targeted actions and continuous information.

In order to establish the cooperation with the potential users, a "contract" between the database users and the administrator need to be produced, which will define the obligations, commitments, levels of access, data protection acts, etc. In addition to that, it may be helpful to provide standard text / instructions to pass to e.g. occupying organizations or subsidiary organizations with only extracted data fields which they are required to fill in. This is likely to be particular relevant where e.g. the registered database user is the owner of the property, but not the occupier, or where e.g. the utilities bills are kept by the accounts department, but the facilities management costs are provided by other departments.

The ongoing challenges for data input include:

- Different responsibilities for recording different cost headings (both different organizations and different individuals holding the data).
- Incompatibility of different organizations' cost recording processes.
- Incompleteness of cost records
- The need for common recording of key issues such as building type, building area and relevant building features.
- The need to update historic costs to current equivalent.

Each organisation need to appoint one person (or one team) for the database information provision and this person / team will be trained accordingly. The database manager / administrator could organise frequent meetings for knowledge and practice exchange in order to transfer the experience to other organisations and continuously improve this process and exploit its benefits.

4 Common recommendations for data input concept improvement

4.1 Recommendations for data reporting

Most focus of the partners was on data collection and input process and not on data reporting methods which is considered as the following step but also critical for the potential users. Database members need to be informed on the reporting and benefits

of the outputs from the database, as incentives for future development and attraction of new subscriptions. Therefore the following recommendations are made:

- Graphical presentation of cost data – some users will respond much better to summary data in the form of graphics.
- Benchmarking and comparative analysis – allow the option to produce results from level 1 (general) and level 2 (detailed) analysis and into groups, eg according to location, date, building type/use, to building size, building systems, to performance level, to type of construction, etc.
- Reporting at per square metre – is useful, but may be misleading as 10,000 m^2 building and a 120 m^2 building are not directly comparable (eg in the UK BCIS report per 100 m^2 as a more accurate way of presenting information).
- Reporting storage – allow users to save their previous data analysis in a specific location.
- Downloading information – allow downloading of data in useful format which is already familiar to users.
- Database software compatibility – ensure that various systems and software packages are compatible with the database format.
- Type of reporting – clarify whether the reporting will be available in hard copy and/or electronic copy. Required format might affect the fee accompanied.
- Data protection assurance – data providers must be assured that the details of their individual buildings will be secured and not available to either non-registered users or to registered users who are not entitled to access the specific data.

4.2 Data input development

Dissemination of awareness of the database is a critical part as also mentioned at section 3.1. In order for the potential user group to grow, there must be awareness of the existence and benefits of the database. During LCC-DATA project, the interest from the market on the database development was widely appreciated in all participating countries, therefore is very critical to explore and enrich this work in order to retain and expand their interest.

It needs to be broadly disseminated that the whole user group will benefit if more users contribute to development of the database, as common cost storage provides the benefit of most building samples, facility and maintenance practices, systems, etc. Therefore, cost indicators will have more statistical significance than analysing and comparing one organisation's premises in which similar operating pattern is followed. Besides, from the experience of LCC DATA project, most of the interest for the building owners focused on the possibility to compare their operation costs for different types of buildings, and take measures for improvements and reduce

operational and maintenance costs, using that as a tool for benchmarking, fact which is encouraged by extensive subscribes.

Especially in PPP or other contracts, usually the contractor has it own plan of maintenance in order to deliver the agreed level of performance and maintenance. This practice often limits innovations and efficient facility management improvements during the contract lifetime and a common maintenance program is mostly followed. Therefore, the involvement of the building owners and/or users in the process of cost data collection and input will increase their knowledge and encourage initiatives towards improvement measures in cooperation with the contactor, the facility manager, etc.

Concluding, compatibility and links from the cost data to other to national statistics and databases as complementary information to the building industry will increase its potential use. Energy certificates from the EPBD implementation might be strongly linked to this database as some requested information are already included in the certificates.

5 Quality Assurance

Accuracy and reliability of the data is crucial as defines the success and the viability of the database in the future. The data must reasonably reliable which means that sufficient detail must be provided in the data collection to allow relevant costs and building features to be accurately captured.

An efficient database management implies the need for both evaluation of inputs before they are integrated into the database and ongoing maintenance of the database. Potentially it implies ongoing modification to the data collection proforma and the associated need to review older data to ensure it is compatible with new data structures. As soon as the database is incorporated into normal working practice and the appointed persons are well trained, the risk of inaccuracies decreases.

Cost information from several years are needed in order to identify changes in data over time (particularly in respect of long term replacement costs which will not occur in the first few years of a new building) and assess any missing or inaccurate information.

In general, the implication of the people and training issues, together with marketing, implies a requirement for some full-time staffing as part of the ongoing arrangements for hosting the database. The cost implications of this for the hosting organization(s) need to be considered in the subscription arrangements for database users and existing organizations which provide building maintenance cost data should be reviewed and their approach considered.

6 Conclusions

Cost data collection, input, storage and reporting, is a process that requires significant effort from the market to support it in order to ensure quality and validity of the indicators produced. Activities such as targeted dissemination, specific training, quality assurance processes, knowledge and experience exchange, as well as ownership and confidentiality issues are the main parameters to consider for a successful database development. The needs of the market for support actions are evident, as well as follow up projects and actions at national and European level. The management and maintenance of the database is significant for efficient future operation and affiliated to this work expenses need to be carefully considered.