THE ISSUE TO BE SOLVED - status quo

Since about 25 years, buildings are planned with support of CAD applications, and therefore are way of digitally documented. Calculating an average lifetime of a building with 100 years, we should have professional, digital information of about 25% of now existing buildings, at least in the „first world". To tell the truth: we have almost nothing at hand. There is nothing to learn from the essence of these informations, because the data are scattered all over the world, not comparable, no more readable, lost, deleted or destroyed. After completion of a building, the efforts of planning it, are normally worthless and the data, created in that process are not further used for years.

THE ANSWER - objective

The purpose of the Architecture Archive international Association (AAiA) is to collect and standardize digital data about buildings and building knowledge. These are mainly plans and models, such as floor plans, elevations, sections, detail-drawings and 3D-models, but also alphanumeric information and media. The AAiA and its national archives host and ensure barrier-free access to these informations within an internet-browser. Particular reference is given to legal issues like privacy, copyright and ownership. Also, an open interface to software products is provided in a manner, that these can access the archives, display plan-data or even enrich objects with additional information. By doing so, AAiA, over time, builds up a digital, historicised and standardized archive of a major cultural property: architecture.

Architecture Archive ™ - the technology behind

AAiA provides most recent - swiss made, therefore of course multi-lingual - technology to display graphical information within a browser in the richest interactive way, latest technologies are capable of (WebGL). The system does not save files, but single CAD-objects within a relational database-structure. Plans are generated on demand, avoiding the limits of a file-based structure.

Ten years of practical use in professional applications, as well as various successful security-audits are the reason, why large institutions like banks, insurances, hospitals, airports and communities trust in this very system.

OPERATIONAL CONCEPT

By founding national member-associations, which operate the local archive-servers, AAiA builds up and organizes a structure, maintaining cultural identity, as well as mutual understanding. The national members educate, train and support archivists, found within the community of professional architects and engineers. Archivists are key-operators, offering the services of AAiA to end users: property owners and builders. They import the data into the technical System, the Architecture Archive™. They standardize and optimize information and create accounts for owners and copyright holders with special attention to legal issues and privacy. These end users are free to share their information, or portions from it with whom ever they like, access their information by browser or certified software to keep their data useful and handy.

BENEFITS - summary

Today, availability of plan informations is all but self-evident. Most likely, if one needs drawings fast, there will be exhausting research and finally frustration about the quality of information. Usually, it means work.

AAiA keeps plan-information and models not only barrier-free available, but literally alive to be used in countless use cases, as introduced below.

By time, there will grow up a data-pool, which provides historicised plans of places, where old buildings faded away, new ones grew up, and afterwards altered again and again. Imagine that displayed as a highly interactive slide-show: The perfect documentation of a cultural property, which no one on earth ever escaped to deal with: Having a home.

BUSINESS MODEL - revenue

Some services provided by the AAiA are subject to charges for property owners and other beneficiaries, like software providers. These are relatively tiny annual fees, based on the size of physical space in square meters of hosted building information. The fees and other incomes from education of archivists and membership fees will keep the archives running, and even should provide comfortable surplus, which is dedicated to the cultural property of architecture and education.

USE CASES FOR THE   Architecture Archive™ provided by AAiA and its National Members

COMMERCIAL USE CASES

Following are products and use cases, which are subject to annual fees per sqm   from owners, builders and software providers. AAiA is focussed on keeping the fees as low as possible in order to spread services fast and keep the technology on top level. Expenses for Architecture Archive™ shall even provide savings, compared to the efforts of producing printed documents to various institutions like banks, insurances, tax- or building   administrations. The commercial use cases in this concept are designed to provide funds out of practical usability for the purpose of supporting the cultural property of architecture, and (not bound to any subject) education.

MARKETING, RENTAL AND SALE (in use)

Architecture Archive™ comes with a standard interface to marketing platforms like immoscout™ or homegate™ . Ads are enriched with interactive plans and models. A prospective customer can measure in the floor plan, to verify, if the offer meets all requirements. Using Architecture Archive™ , landlords or vendors can produce an ad in a few easy steps and send it to registered portals.

CAFM - INTERFACE (in use)

Facility management software usually deals with alphanumeric information concerning financial or technical administration. Since a few years, the demand for implementation of plan information grows. Producers of CAFM software are rarely familiar to this field of information, and often struggle fitting these demands. In every single case, relevant plan information is not, or not sufficient available. There are always efforts creating or converting existing data into a useful IT-infrastructure. Architecture Archive™ in this case solves two problems at once: professional information is available, the interface is open, and everybody can concentrate on his or her real profession.

CAFM LIGHT (proposed, partially in use)

A module for owners of all kind of property, to maintain control of the most important issues of the facility management. These are at least costs and maintenance cycles. Planned, to meet owners of small properties, who normally do not need a full CAFM solution.

PHOTO DOC (in use)

Module, to send photos and comments directly from a mobile device to a building on the server. The module can be used for detailed documentation e.g of damage. Photos are related to a symbol in a floor plan, to mark the place, where it was taken.

BIM SERVER (proposed)

The growing demand for the use of **B**uilding **I**nformation **Mo**deling while planning and building, at least in the public sector is met by Architecture Archive™ in more than one way. It already has implemented all required standards and interfaces (IFC). The database-structure sets Architecture Archive™ apart: while other state-of-the-art software concentrate on data exchange, Architecture Archive™ in addition keeps all planning states and indexes in mind, which adds a complete and reliable 4th dimension to the documentation of processes. Once the building is in place, it is available in standardized **AAiA** structure. Ready to use.

BIM SERVER LIGHT (proposed)

Setting up a full BIM infrastructure for small projects does not make much sense from a view of applying appropriate efforts. **Architecture Archive™** offers builders an easy-to-use way, to keep track of problems and costs. Realizations of even small projects, all to often end up at court. Having a complete and transparent protocol of the processes available helps all involved parties, to avoid and resolve trouble as easily as possible. Architecture Archive™ can help keeping peacefully focussed on the real issue at hand.

EXECUTION PLAN MODULE (proposed)

On site, execution plan communications on paper are actually common sense. These oversized plans contain a lot of ink, which keeps them readable by trained people only. By most probably short time, this will inevitably change. Plans in electronic form can tell much more, than i n k . Architecture Archive™ is well prepared for this challenge: it is able to display information based on the role of a specific user.

SMART HOME APPS (proposed, partially in use)

More and more, the „internet of things" becomes a widely spread desire. Lots of different apps spring into life on a almost daily basis. Steering of technical plants like a heating system or air condition, if in house or by mobile apps can be enriched by graphical interfaces, e.g. floor plans, which indicate room temperature or let you roll down the blinds with a mouse click or touch.
Architecture Archive™ provides the required graphics in proper abstraction.

PRODUCT INFORMATION (in use)

A special section of the international **archives** is reserved for documentation of products, and the availability of related drawing information within a catalog-server. These **symbols** from that server can be used within the edit – functionalities of the plan modules.

RESALE OF „WASTED" TIME (proposed)

Architects are often bound to produce several variants of the same solution. In case, the not used variants include a 3D model, e.g. the gaming industry would be interested, to just buy that model. Architecture Archive™ offers a platform for this kind of trade.

DATA SERVICES A (proposed)

Data services are dependent on a reliable, representative base of information, therefore, they can only be applied after time. The Architecture Archive™ could be able to answer questions not even imagined today. Most of the big internet companies today trade the information, generated by their users to the advertising industry. To avoid this rather ugly purpose, **AAiA** is committed, to check requested commercial data services for legality and privacy. If somewhen a heater manufacturer wants to know, how many households are equipped with old heaters in a certain area, he may get that information. But it would be extremely critical, to mention the owners.
Also, after time, someone on the search for an architect, could do that by just entering his requirements, and the Architecture Archive™ proposes architects, who are specialized in this field.

PUBLIC BENEFIT - USE CASES

Following use cases are subject to free access, either from public, or parts of public admini-stration and services. These use cases are focussed on the benefits of availability of plans and models to the public sector. Future efforts, to put visions like the following in action are not subject to any charges, and will be happily provided form AAiA and its members.

E-GOVERNMENT (proposed)

The main reason, why building application processes cannot be fully integrated into e-government infra-structures, is the need of plan-drawings. Actually, multiple sets of plans have to be attached in printed form, which will be delivered to the single administrative divisions. There, the different papers get comments, stamps and signatures. Using Architecture Archive™, plans can be accessed in electronic form from all divisions simultaneously. Comments, stamps and signatures are provided within division-based special layers, and therefore, can be displayed in one single view. There is no more need, to collect all -meanwhile different- the sets of printed plans, to find the final decisions. The archiving of printed plans within the administration is also no more required. Permission processes, as well as customer consultation can be extremely accelerated and equally refined, because the officers access actual states of buildings within a few seconds.

INDOOR NAVIGATION AND ORIENTATION (proposed)

Orientation in special areas of public buildings, like airports, administrative buildings, subway stations or museums, sometimes can be extremely tricky.
Architecture Archive™ can help, to navigate in such situations, e.g. just by scanning a QR-Code, which brings up the proper floor plan and your position. Also, buildings could be equipped with interactive terminals very easily.

SAVE AND RESCUE I (proposed)

While approaching a building on fire, the team of firefighters can prepare appropriate action, because the alarm device sent simply it's ID with the alarm. Architecture Archive™ searches for the building model, as well for the floor plans, and if available, sends them to the fire engine. This way, the team knows exactly and as quick, as ever possible, where the source of the fire is, and how to approach it best. This could buy important seconds and therefore, save lives. Sure, this concept can be applied also to other security issues.

SAVE AND RESCUE II (proposed)

SOS alarm devices, as well as mobile apps, today -by standard- send GPS positions. But actually, they are usually not exact enough to detect, if the person is within a certain building, or not. The European GALLILEO pro-gramme promises to change that soon. Then, SAVE AND RESCUE I applies to GPS co-ordinates.

LEED, BREEAM, DGNI, SGNI CERTIFICATIONS (proposed)

Sustainability and CO2 footprint is a real big deal in modern times building business. Plans and models are definitely required, when collecting points within certification processes. Architecture Archive™ keeps them available, and therefore, adds to the value of a property and helps saving our environment.

ENERGY PASS (proposed)

Information about the construction of exterior walls and windows / roof parts are the minimum information, required for the classification of the energetic footprint of a built or planned structure. These informations are provided by Architecture Archive™ .

DATA SERVICES B (proposed)

Architecture Archive™ e.g. could help finding proper decisions concerning city–development faster and on a reliable base of information. Also, energetic footprints could be monitored permanently which adds to proper political decisions. There are still a lot of questions to be asked, planning the future by learning from the past. Architecture Archive™ is designed, to bring the answers forward.

CULTURAL BENEFITS

The cultural aspects of AAiA's services are more or less interconnected with all the practical benefits and use cases mentioned above. But there is still more potential in the system. All of the following aspects and use cases are bound to be free accessible, free of any charge, and finally, profits are dedicated to help.

SECURITY, FAIRNESS AND PEACE

Detailed documentations of buildings are usually required, to evaluate the value of a property. Availability of a complete set of reliable statements to a building ensure **exact** results, to be used for financial purposes as loans or insurances. Therefore, the Architecture Archive™ is substantially helpful to minimize risks for the financial sector, and gives the property-owner more fairness, security and peace. In case of a sale, the trade is based on reliable facts. As we'd better learn from very recent history, the stability of global financial structures are concerning not only borrowers and lenders, but actually affect every single person on the planet.
The **Architecture Archive™** promotes concentration on real values in the important real estate sector, instead of relying on virtual market-figures. That, in the last consequence, helps to keep our lives stable and peaceful.

DIVERSITY AND MUTUAL UNDERSTANDING

AAiA's operational units are organized on a national base. **Archivists** are educated and trained on national standards of architectural , IT-specific and legal issues with respect to corresponding international situations by t h e **national member association**. **Archivists** shall be

perceived as the „notaries" between the architects. They are licensed, to serve only in one country, but are among other members invited attending a international committees, developing appropriate standards. By bringing these people to one table in regular terms, mutual understanding shall be promoted.

KNOWLEDGE TRANSFER (proposed)
AAiA business has to be set up on national scales. Also in underdeveloped countries. Locals will be trained and supported, knowledge will be transferred, jobs created. Imagine, at least some African nations run their own **archives**, and use the surplus for building schools on the continent. That is the way, how **AAiA** would be proud of helping people help themselves.

KNOWLEDGE BASE AND EDUCATION (proposed)
Any common knowledge about local and international building technologies, standards and problems can be stored within the archives. The access to this part shall bee free of any limits: Students, as well as professionals and other interested people may access this part of the archive, comment, discuss and rate the provided information. The **Architecture Archive™** herewith promotes an international dialogue on technical, scientific and design-related issues within the cultural property of architecture. The objective of the **AAiA** in this field is to maintain that knowledge over generations, and if technically possible, for ever.

HISTORICISED INFORMATION HOSTING (in use)
As mentioned above, not files, but objects are stored within the **Architecture Archive™** . This way, every single object in a place or environment is recorded with attention to creation, change and termination. In the process of introducing data to the system, the **archivist** decides, for which period data are relevant. **Architecture Archive™** takes objects by their life-cycles, and displays them in matching timeframes only. Processes of change are kept transparent.

ARCHEOLOGY (proposed)
Architecture and archeology are close areas of science. **AAiA**'s point of view: when was what in which place. Lots of archeological sites are subject to be built over as soon as possible. Just, because they are located within a roman settlement as well as in a modern city, which requires the space for actual needs. **AAiA** is committed, to offer all information about archeology to be hosted without any charge for any duration. Excavation teams are only bound to have a certified archivist at hand, to introduce data, They are free to release informations to the public, whenever they think it appropriate. Anyway, in the long therm, archeological facts should be available to everyone. Thus, terms and conditions for this field should be discussed in the right places.

EXISTING ARCHIVES (proposed)
There are already a lot of digital or physical architectural archives around, most of them focussing on historical aspects. They are usually provided by Universities or private foundations. **AAiA** will ensure lively conversations with them and try to establish useful and friendly co-operations. Probably, there can be found an inter-national consensus of finding historical documents. We are looking forward to what can be achieved by talking to these organizations.

DATA SERVICES C (proposed)
From an international, reliable, historicised data source, like the **AAiA** is about to build up, there can be a lot of useful information extracted. Not only local development, but also national or global socio-economic political decisions can be provided with a reliable back-up. Also, for any purposes of historical and social science, the informations, derived from the archives may be helpful and accessible on a immediate basis.

DEDICATED PROFITS (committed)
Last, but not least, AAiA is open, to discuss and implement further use cases. The commercial part of the actual concept is capable to bring sufficient surplus funds to keep AAiA in a situation, from where it can support humanity. There are already lots of programs in place, e.g from organizations like UNESCO, UNHABITAT or UNICEF, which could be fueled by AAiA.