

# High Tech / Low Threshold: Digital Communication in Design-Build Initiatives

Today's architectural practice and academia is being reshaped by technology. Apart from the more visual effects such as digital fabrication or computer modeling techniques, it is also deeply affecting the way the different stakeholders are communicating. New means of communication offered by the worldwide web may become an essential component to facilitate the work of Design-Build-Studios, if used not only as a presentation- but rather as a working-tool at all stages of the project from preparation to evaluation. Under this assumption the research consortium *EDBKN – European Design-Build Knowledge Network*, is currently developing the web-based platform **Design-BuildXchange** as most effective way of communication amongst Design-Build protagonists.

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*'Communication has been one of the deepest needs of the human race throughout recorded history. It is essential to forming social unions, to educating the young, and to expressing a myriad of emotions and needs. Good communication is central to a civilized society.'*<sup>1</sup>

Communication is one of the core tasks in the architectural profession. With more and more stakeholders engaged in the building process it became increasingly more complex and therefore even gained importance. Dietmar Steiner, director of the *Architekturzentrum* in Vienna describes this development in his introduction to the Design-Build Movement: *'[...] the processes and components of building have become increasingly multifaceted [...] Simply comparing information boards hung outside of construction sites today with their counterparts from decades prior makes this fact clear. In the past, these panels listed no more than a client, an architect, a structural engineer, and a construction company. Now, however, numerous specialists, controllers, and project managers are also listed, all of whom have to communicate with one another in their various languages and with their various backgrounds.'*<sup>2</sup>

According to Steiner these highly complex processes can no longer be reproduced in academic training. Therefore the academic instruction should find new ways of reflecting back on the realities of construction, including new communication tools.

Design-Build projects mostly involve stakeholders of different disciplines, cultures or levels of education. When taking online- as working tools into consideration, the form of access to the Internet is an additional challenge the projects are facing. To tackle all of these challenges by incorporating new media as a tool in order to benefit from the possibilities they are offering is the crucial point that yet has to be solved. New means of communication may serve as a working tool for ALL actors involved. Many Design-Build programs focusing on a architecture of social engagement and/ or cross-cultural exchange are already seeking to involve these: Online meetings with clients that might be far away, live-streams from the building site, weblogs offering insightful views and worldwide research possibilities are clearly influencing their work. Information technologies offer a wide-spread range of new possibilities to communicate. Since the worldwide web was made available to the public in the 1990's it was used in Design-Build activities, as can be seen in the documentation of the first *Mexikoprojekt*, a Design-Build-Studio at the Technische Universität Berlin in 1998: *'We [the group of students in Berlin and the clients in Mexico] will be able to stay in contact with ease. Therefore the Internet is offering all possibilities as a fast and economic means of communication.'*<sup>3</sup>

The following will describe how the *Mexikoprojekt*, led to the interactive web-based platform *Design-BuildXchange*, that is currently being developed by the research consortium *EDBKN*. Furthermore some of the main functions of the web-platform will be described according to the communication theory by Paul Watzlawick.

#### **FROM STUDIO TO NETWORK**

The *Mexikoprojekt* is an interdisciplinary lecture and practice workshop at the Technische Universität Berlin. It started as an experiment in 1998, when 2 architecture students of the chair of Prof. Ingrid Götz approached her with their idea of going to Latin America: *'With the support of Prof. Götz of course it would have been possible to find an attractive architecture office for an internship, when the idea came up though to realize charitable building projects in the Sierra Madre del Sur in Oaxaca with the help of the then PhD student, the mexican architect Susanne Dussel, this was no real option anymore.'*<sup>4</sup>

The two students Wolf von Trotha and Volker Bollig ended up building three houses for widows in the scattered mountain village Zaniza. When they came back to Berlin there was suddenly a huge group of students interested in joining them for the next year. In the winter term 1998/99 Prof. Götz decided to make the positive experience of the two students accessible for more students and offered the first Design-Studio with subsequent building phase in Mexico. That was the starting point for an endeavor that would last until 2012, realizing 43 projects involving 467 students from 13 countries. Prof. Götz has stayed with the project as patronage up until today. Upon her retirement the Studio at the Technische Universität Berlin was first directed by Axel Huhn in the framework of a 'Studienreformprojekt' (2005/2006) and then by Ursula Hartig (since 2007), in 2010 Dr. Frank Hassenewert directed the studio. All of them had been involved with the project at the chair of Prof. Götz since the very first years.

Whereas the challenge of communication between the students as planners in Europe and the clients in Mexico stayed the same for the lifetime of the project during all stages of the process: design, realization and documentation/evaluation, the means of communication changed from post letter to regular Skype meetings.

In 2005 Ursula Hartig founded *CoCoon – sector for contextual construction* with the goal to embed the Design-Build methodology at TU Berlin.<sup>5</sup> In 2012, after the up to



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now last *Mexikoprojekt 'A jam manufactory for NAXII'* had been completed, CoCoon initiated and hosted the symposium *Design-Build-Studio: New Ways in Architectural Education* from Nov 29th-Dec. 1st. More than 180 participants with over 60 speakers drawn from North and South America, Africa, Europe, Asia and Oceania met for the first time to work on Design-Build-Studio as a teaching and research methodology in lectures, workshops and discussion rounds. The symposium brought together Design-Build-Initiators, members of universities, the academic exchange, architectural practice, governmental and nongovernmental organizations as well as organizations of cultural and developmental cooperation. These intensive three days were filled with enthusiasm and the urgent need to build up a network of various worldwide actors who all find themselves struggling with the same issues was formulated by the end.<sup>6</sup>

Taking this as a task CoCoon successfully applied for funding by the European Union in the Erasmus Mundus Programme in 2013. The resulting research project *EDBKN – European Design-Build Knowledge Network* is since then co-ordinated by the Technische Universität Berlin, Habitat Unit and CoCoon and carried out with it's consortium partners Ass. Archintorno, TU Wien, Dalhousie University and the German University Cairo. The web-platform *Design-BuildXchange* will become the



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Figure 1: Design-Build-Studio Mexikoprojekt 1999: *community building for Talea*, image by Praktikum-sprojekt Mexiko 1999

Figure 2: Design-Build-Studio Mexikoprojekt 2012: *a jam manufactory for NAXII* image by CoCoon - sector for contextual construction



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main tool of the network, the widespread experience of the collaborators builds the foundation for it's development.

The web-platform should become a further step towards an international operating online network on Design-Build. To use it as an everyday tool instead of an additive means of presentation of projects is the main challenge for the EDBKN research consortium. In order to reach that goal the platform will be elaborated carefully involving many collaborators from different disciplines. The need for an online communication tool for facilitating communication in architectural projects of social engagement can also be witnessed in the various similar initiatives, like the North-american *d/b X network* <sup>7</sup>, the *Live Projects Network* <sup>8</sup>, the *SEED platform* <sup>9</sup> or the *architectureindevelopment website*. In order to join forces the EDBKN consortium is co-operating with them as much as possible.

#### DESIGN-BUILDXCHANGE WEB-PLATFORM

The *Design-BuildXchange* web-platform aims to become a working tool for the numerous stakeholders related to Design-Build. The targeted audience consists of actors performing in the fields of research, teaching and practice, these can be teachers in academic and non-academic education, students, researchers, planners, entrepreneurs and craftsmen from various disciplines. It will serve local clients and users and will be an exchange and acquisition platform for project supporters such as international NGOs, development agencies, humanitarian associations, foundations, individuals, the construction industry, business and international academic exchange services. Each one of the variety of actors named above will have their own way and intention of using the platform. It will serve as an information, PR and marketing tool for the general public, institutions of higher education, governmental organizations, charities, research societies, future initiators, the press, family members and friends, private donors and companies.

There are 2 kinds of membership on the platform, that differ by the amount of background information required upon registration: the basic user that can only post in the forum and the fully registered user. The latter may contribute content to the platform by uploading a personal profile, posting projects, registering an organization, uploading Design-Build related research papers, design and construction plans, bibliographic references and other material. Members can also take part in discussions in the thematic forum.

Figure 3: entrance wall to the symposium 2012:  
*Design-Build-Studio: New Ways in Architectural Education* image by CoCoon - sector for contextual construction



THE MAIN FIELDS OF ACTION

<p>NETWORKING TOOL</p> <p>Make lasting connections for .....</p> <p>READ MORE</p>	<p>RESOURCES</p> <p>Find an exchange DesignBuild knowledge</p> <p>READ MORE</p>	<p>NETWORK OVERVIEW</p> <p>ORGANISATION MAP PROJECT MAP EXPERTS MAP</p>
<p>PROJECTS</p> <p>Find DesignBuild projects worldwide</p> <p>READ MORE</p>	<p>ORGANISATIONS</p> <p>Find registered Organisations</p> <p>READ MORE</p>	<p>MEMBERS</p> <p>Find network members</p> <p>READ MORE</p>

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Apart from the profile pages for the content types organization, member and project, there is a Design-Build library where network members can post information for direct download or as bibliographic references. The library database contains research papers, books, articles and project documentations, as well as plans, videos and other useful material. The networking tool offers the possibility to search for or offer collaboration opportunities, knowledge, expertise, materials, equipment or project funding. Thematic forums allow the exchange of information on current issues and when looking for quick solutions.

All content can be searched for with an elaborately guided search function as well as a full text search providing results categorized by content type. The responsive design of the platform offers the possibility to use the platform under different circumstances.<sup>10</sup>

**USE OF THE DESIGN-BUILDXCHANGE WEB-PLATFORM**

The Austrian-American psychologist Paul Watzlawick, a key figure in the fields of communication theory divides communication into content and relationship aspect<sup>11</sup>. This classification of human communication patterns can also be used to describe and categorize the intended use of the *Design-BuildXchange* platform. The main difference between the two transferred to the platform is that the user does not

Figure 4: Homepage of the web-platform:  
*Design-BuildXchange* image by EDBKN - European Design-Build Knowledge Network

necessarily have to be registered on the platform for using the tools with a content aspect, whereas this is required regarding the relationship aspect, when he is directly getting involved.

The content aspect of the *Design-BuildXchange* platform refers to the cycle of exchange of knowledge to the presentation of results during the course of a Design-Build Studio. The content aspect does not necessarily include direct interaction with other users dealing with information on a theoretic level. According to the phase of the project the content aspect is related to different topics. In the following the use will mainly be described as performed by the Design-Build actor during the course of a whole studio cycle. This serves as a case study and can be transferred to the other actors as described above.

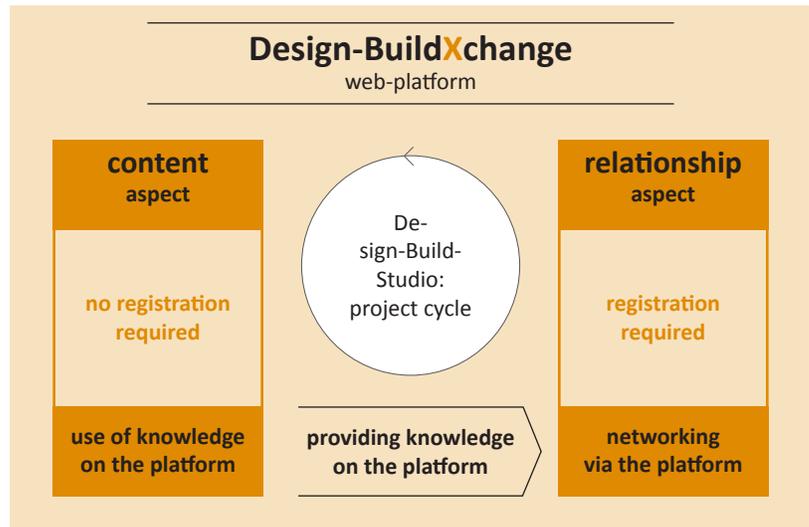
In the preparatory phase, that is to say in the stage before the work of the studio class, an academic embedment starts, the guided search tool will work as the most effective tool. By using the elaborated tags search the search results are filtered and show up according to their type of content. This way the library can be searched for topics like e.g. funding strategies, management structures, construction techniques or the embedment in the curriculum. It provides easy access to and the compilation of categorized literature and research material, that can either be used to prepare the seminar or the building project. Search results also include the thematic forums, member or organization profiles and project profiles. The project profile pages provide detailed background information on completed projects and the actors involved, that can be used for structuring and putting their own project in order. Another tool to search for different types of content classified by location is the world map.

For the stage of the ongoing Design-Build Studio, the phase when the actual project is being designed and built by the students, the *Design-BuildXchange* platform can be used as an information resource preparing and gathering information about the project in development. This can either be done in a way of showing the students best practice examples or letting them search the database on their own. The platform can support either on a content level by showing a huge variety of examples related to the same thematic topics required, e.g. climate responsive building for a certain region, facilitation of the building permission process and so on, as well as on the motivation level showing the involved actors what has already been achieved under similar circumstances.

After the Design-Build Studio class is completed including construction, the platform offers a variety of possibilities to find ways of presenting and evaluating their own completed work. These show up on the platform in the news and events section, announcing competitions or conferences related to the topic amongst others. Searching for best practices will also provide a possibility to get inspired on how to integrate the project in their own academic career.

The relationship aspect of the Design-BuildXchange web-platform refers to the cycle of providing and seeking knowledge. Actors on the platform get into direct interaction and communicate with each other online. This networking process, mostly related to the different type of user of the platform, requires the user to register and login as he or she is contributing content to the platform.

During the preparatory phase the user can already upload a member profile, register a new organization or get linked to an existing one, the project can be posted, allowing to show it's current status including background information, images and documents. The shared information on these three profile pages will serve as a means of



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communicating the own status of work and can therefore serve as a presentation tool towards interested collaboration partners like funding partners, students and academics. There is a possibility of integrating partner logos on the project profile page. Searching for specific content, there is a contact section on every profile page allowing to get connected directly. The thematic forums as well as the networking tool offers the possibility to search for or offer knowledge, manpower or different sorts of material.

Through the possibility of subsequently updating the project profile page by adding to the input mask, uploading images and supporting material or project updates the project profile page gives an up to date overview on the project status. This is a very useful and easy tool to keep all collaborating as well as interested parties informed about the project status. For editing the project profile page a group can be created to give the rights to edit to more users.

After the Design-Build Studio is completed, the project profile page will then already serve as a perfect means of documentation of it, showing the project in it's full range. This will serve as a reference towards funding organizations, for young faculty members in their academic career and as well as for seeking collaboration partners for the next project.

Scientific documents uploaded to the library may facilitate the publication process for young faculty. The three profile pages are linked with each other where reasonable. For example the Design-Build projects a member posted will show up on his or her profile page, the organization page is linked to the project page in the contact section, etc.

Means of evaluation of project results as well as for further accompanying the outcomes are currently being developed.

## CONCLUSION

Manuel Castells, a spanish sociologist especially associated with research on the information society and communication describes the difference between virtual and real communities:

*'So, in the end, are virtual communities real communities? Yes and no. They are communities, but not physical ones, and they do not follow the same patterns of communication and interaction as physical communities do. But they are not*

Figure 5: use of the Design-BuildXchange web-platform

*'unreal', they work in a different plane of reality. As Wellmann puts it, they are not imitations of other forms of life, they have their own dynamics: the Net is the net.'*<sup>12</sup>

As new media becomes more and more of an everyday communication tool, web-based online platforms will be opposed to an ever increasing interest. As it can be seen in the quote of Castells above this form of communication will have to develop carefully. The *Design-BuildXchange* will have to grow and develop along with a sharp and precise evaluation on how it will be used. It should not become a time consuming, additional means of presentation in addition to the ongoing work, but rather get integrated in the process of the Design-Build Studio in order to mitigate problems and strengthen the efficiency in the work of Design-Build Studios. It's aim to promote the implementation, distribution and sustainability of the Design-Build methodology can only be reached by this.

The extensive database that will thus subsequently be created by the acting participants worldwide will enable the knowledge transfer and exchange of experiences amongst Design-Build protagonists. By making their work more visible and presenting the process and the results of the Design-Build Studios, an image will be produced to describe the term Design-Build in an academic environment towards more interested stakeholders. As a form of corporate identity the *Design-BuildXchange* platform will show the complexity and the variety of the projects, that are yet still far from being exhausted by bridging the gap regarding the antagonism of 'filthy' hands-on practice and 'clean' new media tools.

## ENDNOTES

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4. A. Huhn, 'Architekturstudenten bauen in Mexiko, Praktikumsprojekt 2004' Technische Universität Berlin, p. 13. 2004.
5. CoCoon is a sector for contextual planning, design and construction in an intercultural and interdisciplinary context. It combines teaching, research, practice and networking. It is directed by Ursula Hartig, current staff members are Simon Colwill and Nina Pawlicki.
6. CoCoon – sector for contextual construction. (2013). CoCoon. Retrieved September 1st, 2014, from [www.cocoon-studio.de](http://www.cocoon-studio.de)
7. The North-american partnership 'Thinking while doing' initiated the Design-Build exchange (d/bX). It is directed by Prof. Dr. Ted Cavanagh, Dalhousie University, also a partner in the EDBKN. 'The Design-Build Exchange (dbX) is an initiative to facilitate the exchange of information, knowledge, and practices critical to educational Design-Build endeavors in North America. The Design-Build Exchange is to be delivered through various media including a website.' retrieved September 1st, 2014 from [www.db-x.org](http://www.db-x.org)
8. In 2012 Jane Anderson and Colin Priest, both educators at the Oxford Brookes University established the Live Projects Network: 'an international online network of Live Projects to connect students, academics, practitioners and external collaborators involved in Live Projects. 'The purpose is to promote the use of Live Projects in education, share best practice, encourage dialogue and contribute to the establishment of a theoretical basis for the study of Live Projects. The site aims to include as diverse a series of case studies as possible for different Live Project models.' (J. Anderson, C. Priest 'Developing an inclusive definition, typological analysis and online resource for live projects' in 'Architecture Live Projects: Pedagogy into Practice' edited by H. Harris, L. Widder. Routledge Chapman & Hall. p. 13. 2014
9. The co-founder of the SEED Network Prof. Sergio Palleroni is head of the advisory board of the EDBKN: 'SEED maintains the belief that design can play a vital role in the most critical issues that face communities and individuals, in crisis and in every day challenges. To accomplish this, SEED provides tools—the SEED Network and SEED Certification—that guide design professionals toward community-based engagement with design practice. These tools support a public-interest methodology that is increasingly recognized as an effective way to sustain the health and longevity of a place or a community as it develops over time.' retrieved September 1st, 2014 from [www.seed-network.org](http://www.seed-network.org)
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