BUILDING BEYOND BORDERS FALL SYMPOSIUM 2022



PROCEEDINGS OF THE 2ND FALL SYMPOSIUM, NOVEMBER 17-18, 2022

REFLECTING ON THE AGENCY OF ARCHITECTURE FOR REGENERATIVE AND DISTRIBUTIVE SOLUTIONS IN THE GLOBAL NORTH AND THE GLOBAL SOUTH



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As a response to the extractive and exploitative character of the building sector, many universities and architectural practices in the Global North and the Global South have started to investigate other ways of designing and building that create a positive impact on both social and ecological level by searching for regenerative and distributive solutions (cfr. concept of Doughnut economics). Examples are universities or Schools of Architecture that set up design studios and design & build projects in their own country or abroad to realize projects with locally harvested or regenerative materials, often in co-creation and collaboration with local communities (cfr. Postgraduate Building Beyond Borders). Also many architectural practices have been exploring new ways of designing and building that challenge both the traditional materiality and the traditional client-architect relation. This way, architectural schools and architectural practices try to become agents of change.

Most universities and architectural practices see this as a learning opportunity and an opportunity to create positive impact, by exchanging expertise with different stakeholders and by incorporating co-creative ways of working with local stakeholders. Students are confronted with different visions of reality, learn to build with local materials and building techniques, with nontraditional clients, ... and try to integrate it in their projects. Architects expand or change their role from designer for a specific client to manager of a building community, coordinator of participatory workshops, developer or producer of new building materials, ...

Schools of Architecture and architectural practices consider this 'building beyond borders', not necessarily only beyond geographical borders, but more importantly beyond professional, social, technical, cultural, intellectual, ... borders.

Yet whether the impact of building beyond borders is actually positive, whether it inspires others to do things differently, to look differently to the built environment remains quite often implicit. How do communities experience a project in which students or architects try to create regenerative

and/or distributive solutions? Do these solutions actually meet their needs? Do both human and more-than-human beings experience a positive impact? Do these projects induce changes in the building industry? What are the keys to reassure positive impact and positive change on all levels and all beings in such cross-border building projects?

With this second Fall symposium edition, we would like to initiate a broad conversation and reflection on the topic of the agency of architecture in creating changes towards more regenerative and distributive solutions and approaches in the building sector, both in the Global North and the Global South.

We invited Akemi Ino (University of São Paulo, Brazil) and Joshua Peasley - Harry Thorpe (Caukin Studio, United Kingdom) as keynote speakers, to highlight different perspectives on the topic of regenerative and distributive design and build in different contexts.

Academics, practitioners, students, NGO's, community members, ... contributed to this conversation, through an active contribution by means of a presentation or lecture or by attending the symposium and participating in the discussions.

In the following pages, you can find the symposium programme. The rest of the proceedings contain the papers that were submitted after the symposium. Not all presentations resulted in a full paper.

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Welcoming and check-in —

— DAY 1

KEYNOTE LECTURE 1

chair Rafael Passarelli

Low-carbon building technologies in rural communities: wood and the new paradigms for architecture and construction - prof. dr. Akemi Ino (Br)

PLENARY SESSION

Approaches for regenerative and distributive solutions in build projects *chair Griet Verbeeck*

Re-wilding the garden city: report from a Live Project in Genk (Huybrechts Liesbeth)

Passive design retrofit solutions for addressing thermal stress in informal settlements in India (Makhija Kirti, online)

Co-creation for enhancing culture of reading in public spaces: learning from Europe Readr experience in Serbia (*Morpho-Lab, online*)

The initiative Rising Star and the impact of socio-cultural parameters on design and construction in cross-cultural project team collaboration (*Egbers Kristina*)

Lunch_

PARALLEL PRESENTATION

Academic research opportunities in regenerative and distributive build projects *chair Griet Verbeeck*

(Re)searching care in la Biblioteca Popular, Buenos Aires, Argentina (*Dehm Franziska*)

Design-driven participatory action research as anticipator for a mid-scale, peri-urban farmstead in Marienburg, Suriname (De Feyter Nathan)

Ideas for sustainable and permanent power: lessons learnt from home-coming in Entebbe, Uganda (*Parrein Laurence*)

PARALLEL PRESENTATION

Architectural practice opportunities for regenerative and distributive build projects *chair Els Hannes/Peggy Winkels*

Co-creating, committing and cohering. Fighting water scarcity in Senegal (Tomasina Benedetta, online)

New ruralism and regenerative hybrid living: Crossways Farm Village (*Thirion Floris*, *online*)

The rural heritage context as an activating scenario of public space in the Pandemic in Susudel-Ecuador (*Cardoso Fausto*, online)

Coffee break -

PARALLEL PRESENTATION

Teaching for regenerative and distributive solutions in academic architectural education chair James Benedict Brown

Learning experiences and multidisciplinary perspectives.
Sustainable development of a fisherman settlement in São Tomé and Príncipe (Casimiro Alexandra)

Maintenance campaigns for Andean heritage architecture in Southern Ecuador: the case of Cochapata (Cardoso Martin, online)

PARALLEL PRESENTATION

Architectural practice opportunities for regenerative and distributive build projects *chair Elke Knapen*

Urban mining for good (Puelinckx Evy)

Implementing strategies towards a regional resource transition in the building economy (Zabek Magdalena)

Architectural education for regenerative and distributive solutions - Design & Build with wood (*Passarelli Rafael*)

Welcoming and check-in —

DAY 2

KEYNOTE LECTURE 2

chair Mark Olweny/Peggy Winkels

CAUKIN Studio: impact through architecture arch. Joshua Peasley (UK)

PLENARY SESSION

Drivers and pitfalls of regenerative and distributive solutions in build projects chair Elke Knapen

Combatting energy poverty: design aspects of a community center in Groningen (Psarra Ifigenia)

The Climate Responsive Design Project: Building Awareness in East Africa (Olweny Mark, online)

ZIMA Homes: Sustainable affordable housing in Kenya (Madete Etta, online)

Linear till proven circular: wicked problems from construction practice (Geldermans Bob)

Lunch-

PARALLEL PRESENTATION

Stakeholders in regenerative and distributive build projects: roles and learning opportunities chair James Benedict Brown

An approach to present the benefits of fog collectors to poor rural communities (Verbrugghe Nathalie)

Learning from slums: the new vernacular (Isokpan Osarieme)

Local private sector development in the waste sector: two cases from East-Africa (Versele Alexis)

PARALLEL DISCUSSION

Evaluation of (positive) impact of regenerative and distributive build projects on community and building sector chair Liesbeth Huybrechts

short introductive lecture Academic research and participatory actions towards regenerative and distributive architecture: the case of ParckFarm, Brussels (Morina Elmedinë)

guided discussion (Huybrechts Liesbeth)

Coffee break

PLENARY SESSION

Summary of parallel sessions Summary of discussion sessions Conclusive reflections and future initiatives

chair Rafael Passarelli

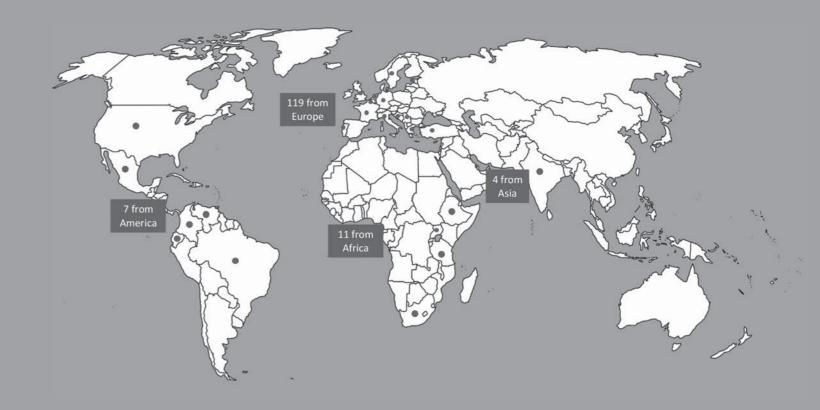
Summary of the sessions

Discussion on the impact on communities based on the input from all contributions

Conclusive reflections and future initiatives

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2ND FALL SYMPOSIUM BUILDING BEYOND BORDERS



141 PARTICIPANTS - 39 ONLINE/102 ON-SITE

23 COUNTRIES

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CONFRONTING THE SYSTEMIC NEGLECT OF THE COOLING
NEEDS OF INDIA'S URBAN POOR THROUGH MOBILISING
PARTICIPATORY DESIGN PROCESSES TO CO-CREATE PASSIVE
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INFORMAL SETTLEMENTS
THE INFORMAL HOUSING THERMAL COMFORT PROJECT CASE
STUDY (MAKHIJA KIRTI & VINITA RODRIQUES)



CO-CREATION FOR ENHANCING QUALITY OF PUBLIC SPACES:
LEARNING FROM EUROPE READR EXPERIENCE IN SERBIA
(MORPHO-LAB: VLADAN DJOKIĆ, ANA NIKEZIĆ, JELENA RISTIĆ
TRAJKOVIĆ, MILICA MILOJEVIĆ, VERICA KRSTIĆ, ALEKSANDRA
ĐORĐEVIĆ, MLADEN PEŠIĆ, ALEKSANDRA MILOVANOVIĆ, MILOŠ
KOSTIĆ)



SOCIALLY COMMITED, GLOBALLY MOTIVATED

THE INITIATIVE RISING STAR AND THE IMPACT OF SOCIO-CULTURAL PARAMETERS ON DESIGN AND CONSTRUCTION IN CROSS-CULTURAL PROJECT TEAM COLLABORATION (KRISTINA EGBERS)

Vladan Djokić, Ana Nikezić, Jelena Ristić Trajković, Milica Milojević, Verica Krstić, Aleksandra Đorđević, Mladen Pešić, Aleksandra Milovanović, Miloš Kostić

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CO-CREATION FOR ENHANCING QUALITY OF PUBLIC SPACES

LEARNING FROM EUROPE READR EXPERIENCE IN SERBIA

ABSTRACT: There is a rising concern in the architectural academic and professional community about the current transformation of cities and public spaces, seeking for (a) new and innovative approaches to planning and shaping future cities and habitats, and (b) a platform for experimentation and designing of innovative solutions to complex societal problems through co-creation. The paper aims to highlight the regenerative role that educational projects with a practical dimension could have on the public space and the community. The Europe Readr pavilion in Serbia has been developed in the cooperation of the Embassy of the Republic of Slovenia in Belgrade and the Laboratory for urban morphology and typology (Morpho-Lab) of the University of Belgrade – Faculty of Architecture within the broader international project EUROPE READR. Guided by European values, sustainability, and the European Green Deal through designing public spaces for the exchange of ideas and values, UBFA considered both the process of learning - and the result itself. Accordingly, the process implied multiple phases of project development that included two-stage student competition, three mentored workshops and presentations to project partners, and finally, implementation phase. The paper brings significant experiences regarding potentials and challenges in innovation, critical thinking, competence, co-creation, developing technical drawings, understanding of building and assembling techniques, public purchase regulations, and on-site activities. The project provided stepping out from academia bringing a positive change both to education and public space.

KEYWORDS:

MOBILE PAVILIONS

PUBLIC SPACE

EDUCATION

CO-CREATION

1. INTRODUCTION

The architectural academic and professional community are faced with series of challenges some of which are social transformation, climate change, globalization, urbanization, consequent depletion of existing environments, and growing pressure on public services, infrastructure, and housing. Additionally, public space is threatened by densification, abandonment, and devastation. Such a contextual framework requires the development of (a) new and innovative approaches in planning and shaping future cities and habitats, as well as (b) a platform for experimentation and designing innovative solutions to complex societal problems through co-creation. This is confirmed by a series of affirmative and research-stimulating declarations, policy positions, and strategies aimed at the practical arena of architecture of which the leading one is the New European Bauhaus Manifesto directed towards 'shaping more beautiful, sustainable and inclusive forms of living together¹.

The research is realized within Europe Readr project aimed at encouraging the culture of reading and critical thinking about society in the future and initiating a public debate on European values, sustainability, and the European Green Deal through designing public spaces for the exchange of ideas and shared values². Project realization lasted from March to September 2021, under the leadership of the University of Belgrade – Faculty of Architecture, Serbia.

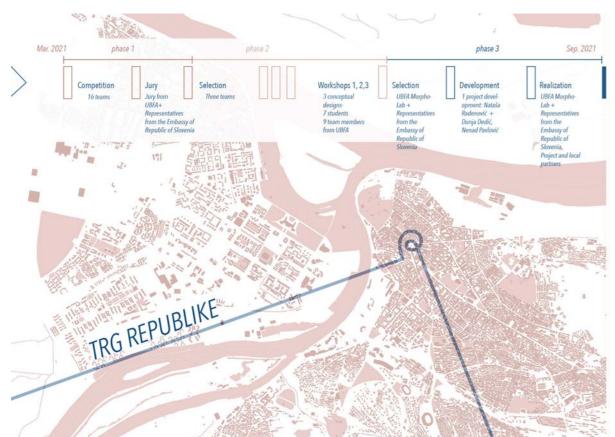
Project consisted of three phases: (1) student competition - research by design for the conceptual design of a pavilion / spatial installation in public space, (2) students' workshops - development of shortlisted competition solutions through physical and digital modelling, and (3) on-site activities - construction of a single pavilion on Republic Square in Belgrade. It is important to emphasize the initial idea to design mobile pavilion that could fit in various sites and for various uses- for the students, for the local community (at the level of the settlement, neighbourhood on the outskirts of the city, etc.), or for the general public on the main city square. Aside from fitting into different contexts, this intention was supported by the consideration of the lifecycle of the pavilion, which will exceed the duration of the Europe Readr project and enable project sustainability.

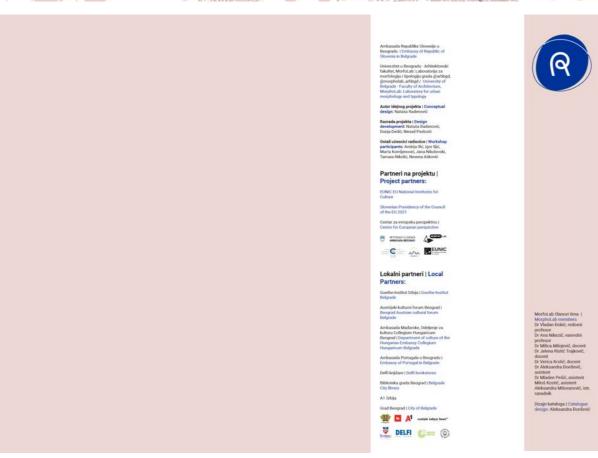
2. RESEARCH CONCEPTUALIZATION

The Europe Readr project is the largest Slovenian's cultural project during the Slovenian presidency of the EU Council, aimed at promoting the culture of reading – both analog and digital³, directed toward engaging students and Higher academic institutions to actively shape public spaces in the future. In total, 26 countries participated in the project, Serbia being one of them4. Following initiating principles, the cooperation between the University of Belgrade – Faculty of Architecture (UBFA) and the Embassy of the Republic of Slovenia in Belgrade was established in early 2021. Within the UBFA, MorphoLab – Laboratory for Morphology and Typology was in charge of project implementation. The specificity of this lab comes from the fact that it gathers academics (active both in research and practice) from different disciplines overcoming the boundaries established by the faculty's departmental structure. At the very beginning, UBFA recognized the need to design spatial installation that (1) calls for dialogue and engagement in public space and active citizenship through culture, (2) unite the institution of reading with the creative vigor of students and design institutions, (3) provides a place open for various views, consumption and interpretation.

The project was implemented in three phases, during which different actors participated (Figure 1) which will be elaborated in detail in the remainder of the paper. The selected site was Republic Square (Trg Republike), located in the historical center of Belgrade. The city recognized the importance of this project and hence joined the cooperation in the implementation phase by enabling the necessary permits for the pavilion to be installed at the main city square.

Figure 1: Timeline of the Europe Readr Serbia and selected site





3. RESULTS AND DISCUSSION 3.1 Phase 1

A public student competition for the conceptual design of a pavilion / spatial installation was announced and published on March 2, 2021 by the University of Belgrade – Faculty of Architecture. In the competition brief, students were asked to incorporate three main principles. First, to apply mobility both on the level of structure – to fit in in various contexts, and level of elements – to provide interaction. Secondly, to incorporate assembling-dissemblaning principle – to adjust to different spatial capacities and conditions. Finaly, students were asked to think about multifunctionality in order to support various exhibition and other activities such as play, rest, recreation, etc..

The specific task was to use single elements that do not exceed 2,8 meters, to think about various groups of users (students, elderly, children, etc.), and to question different manners of promoting reading culture, hence to incorporate both places for books display and digital libraries. The flexibility of the proposed spatial structure should also have the characteristics of modular systems, and use methods such as addition, subtraction, superstructure, insertion, etc., in order to (1) create different spatial configurations, and (2) respond to various financial constraints. Students were also encouraged to rely as much as possible on independent power sources concerning the existing infrastructure networks, to apply rational concepts that are economical,

Table 1: Phase 1 potentials and challenges

	+ (positives/potentials)	- (negatives/challenges)	
Innovation	New methods of assembling existing structural systems, new ideas of elements, new product that can be patented	Principle of modularity combined with the lack of experience for costs estimation led to many unrealistic ideas (in financial and time-bounded manner)	
Critical thinking	Flexible brief and task – variety of conceptual solutions	Critical thinking requires more time in the initial phase	
Competence	17 authors teams (38 students) from 4 higher education institutions competed	Difficulty of perception and estimation of competitors competences and motivation in the early stage,	
		predominantly students of Bachelor level	

Table 2: Sixteen submitted student projects



ecologically justified, and energy efficient, and to use locally available, sustainable materials (e.g., wood, recycled materials, and others). The jury consisted of five professors from the University of Belgrade – Faculty of Architecture and one representative of the Embassy of the Republic of Slovenia in Belgrade.

In total, 17 author teams consisting of 39 students from 4 higher education institutions took part in the competition: the University of Belgrade - Faculty of Architecture (25 students), University of Arts in Belgrade - Faculty of Applied Arts (12 students), University of Montenegro - Faculty of Architecture (1 student) and the University of

Belgrade - Faculty of Philosophy (1 student). The jury decided unanimously to give three equal prizes and invite those three teams to participate in the second phase. The awarded projects showed the highest potential for further development bearing in the mind project brief and directly promoting the ideas implied by the European Readr project.

Time has been perceived as the most challenging factor in the first phase, leading to the lack of involvement of other experts who could secure multidisciplinary perspective at the learning evironment, and hance limiting critical and reflective thinking in the conception phase.

Figure 3: Iterative Workshops - testing on scaled models (1:50) (photos by Aleksandra Milovanović and Aleksandra Djordević)



Table 2: Phase 2 potentials and challenges

	+ (positives/potentials)	- (negatives/challenges)	
Co-creation	Joint and iterative work of 7 students and 9 teaching staff members	Limited work and in person encounters due to COVID-19 rules	
	Encouraging students to contact local distributers and initially get acquainted with building and constructing technique	Uncertainty of which project will be chosen – lack of interest of local distributers to provide to create a price estimation	
	Testing structural systems and joints on scaled models (1:50)	growing list of project partners – unfamiliarity with technical requirements (wi-fi, capacity for books display)	
	Different number of team members (1-3) and various students background (architecture, furniture) and study level (bachelor, graduate)		

3.2 Phase 2

Within the second phase that lasted from April to May 2021, more detailed elaboration of conceptual solutions towards technical projects for implementation in terms of program, materialization, applied systems and technologies was performed. The workshops were realized within UBFA, during the COVID-19 pandemic, which caused specific limitations regarding the quantity and duration of encounters, number of people in the classroom and teamwork dynamic outside the University. The second phase aimed to upgrade the design solution to meet jury feedback and the financial and technical requirement, to conduct preliminary optimization of spatial capacities, technical and structural requirements, to define materials (use of locally available, sustainable materials), and accordingly to prepare documentation for the realization of the pavilion. Also, throughout this phase, technology and construction behind modularity, multifunctionality and mobility were questioned and specified.

Three workshops were held at the University of Belgrade - Faculty of Architecture, during which members of selected teams (3 teams, 7 students) worked jointly with MorphoLab members (5 teachers and 4 teaching and research assistants). It is worth mentioning that all engaged members of the teaching staff had significant experience in education and expertise in various domains of design and scale - from conceptual to systemic and from urban to architectural detail. Additionally, students were left with the option to invite colleagues to join their teams, and hence manage to produce quality in a relatively limited time and during the regular school year. During this phase, students were constantly encouraged to contact local retailers and distributors to have insight into the availability of resources and price estimation. Through a series of iterations and testing through physical models (scale 1:50) as part of the joint work in workshops, selected design solutions were upgraded, optimized, and prepared for the final presentation held on 17 May 2021 in the presence of students, representatives of the Embassy of the Republic of Slovenia in Belgrade and the tutors from the UBFA.

For the second phase, most limitations were seen at the uncertainties regarding the full list of partners, and administrative procedures that depended on the solution which will be chosen.

3.3 Phase 3

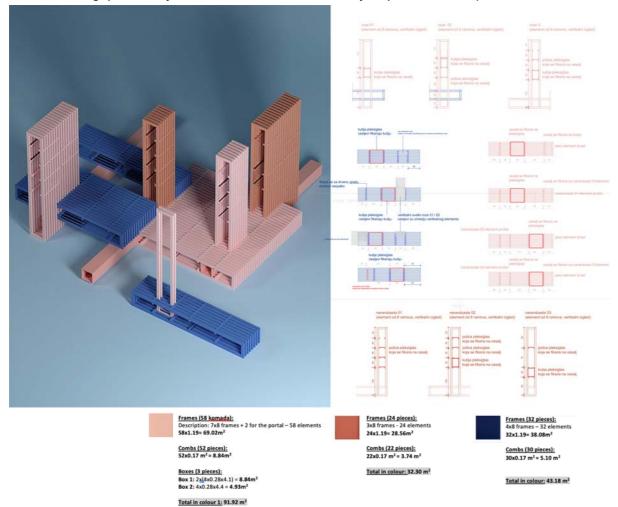
The third phase included the elaboration of the selected conceptual project (student - Natasa Radenovic) down to the contractor's details (phase 3a), as well as the construction and realization of the pavilion (phase 3b). Within this phase, the design itself was further improved through technical and technological elaboration, causing the modification of the structure to a series of identical mobile elements that form a whole and enable mutual interaction of its parts. The basic structural element is a wooden frame (dimensions-280x40x60cm), Multiplication of this frame forms a box-like element that becomes a essential formal unit of the pavilion. Subsequent rotation of these elements in the horizontal and vertical plane creates new spatial assemblies and ambiances that can be adapted to different contexts, spatial capacities, and needs of users in public spaces. The elaboration considered the static stability, durability of the material, its color, as well as the possibility of later use of individual parts of the pavilion for the needs of another space or event. The third phase focused on the technical aspects of the development and finalization of the pavilion by checking the static stability of the structure itself, material selection and color testing, consideration of technical details, and production of the workshop and technical drawings.

In this phase, in addition to the members of the faculty, the student team was joined by students in the Second year of Master Academic Studies at the UBFA. Additionally, during this phase, highly skilled academics working within the UBFA were consulted regarding static and stability of the pavilion that altered the solution and made it more statically stabled. In the third phase, both time and administrative procedures followed by protocols highly affected the workflow.

During this process, the boundary between students and mentors, the author of the idea and the author of the solution in the phase of realization was overcome, as the only possible way to transfer the idea of the pavilion towards its realization.

After the finalization of drawings done by students, UBFA started the process of finding local retailers and wood masters who have the skills to construct the pavilion. When the wood master was selected, initial consultations were made to select the adequate material that would secure duration and resistance of the structure in different weather conditions. In the meantime, the members of the MorphoLab had to finalize the drawings and make final calculations regarding the number of frames, combs, drawers (statically and functionally

Figure 4: Finalization of drawings, technical specification and colour calculation (model produced by students and technical drawings produced by students and revised and enriched by MorphoLab members)



necessary), and paint (Figure 4). During the construction phase, several visits to the workshop were made, while in the final phase members of the MorphoLab team actively participated and guided the assembling process. On the night ahead of the opening, the 9th of September, students, and teachers, along with woodwork participated in the assembling process at the Republic Square. During this process, several challenges arose: (1) unevenness of the square and the request not to have any physical joints - the structure needed to be self-standing, (2) the weight of the elements, since combined frames and combs had around 100kg, (3) securing and safeguarding the boxes with two-fold reason – stability during heavy winds (initially addressed by having porous vertical elements) and security from being stolen since neither cameras no physical security was provided. The process of assembling at Republic Square lasted for six hours.

The morning after, local bookstores came and started filling in the voids of the pavilion design to welcome books and readers. Both during the night and the morning of the opening ceremony, citizens were sitting and asking questions both about the EuropeReadr project and Pavilion design. The pavilion had numerous QR codes that led people to the online digital library. One of the unforeseen results was that everybody who took pictures of Republic Square in the direction of the pavilion was offered to visit the EuropeReadr project library, hence increasing the project's visibility and reach. During three months, the pavilion was used by various users for sitting, reading, gathering, a book signing, a discussion with a respected German author, and showcased UBFA student projects exhibition titled "Architecture students on Belgrade".

Table 3: Phase 3 potentials and challenges

	+ (positives/potentials)	- (negatives/challenges)
Developing technical drawings	High technical skills of drawing and 3d modelling among students	Lack of students' experience in the process of actual building and constructing – need for the constant quality control by teaching staff
understanding of building and assem- bling techniques Public purchase regulations	Having highly skilled consultants within the UBFA regarding static and stability of the pavilion	Need to lighten the structure due to the request for mobility and flexibility, yet secure stability of the structure – introduction of plexiglass boxes that led to the increase of necessary funds, Necessity to follow public purchase and the most economically favourable offer – durable process, Lack of time for the project construction,
on-site activities	The books that were displayed were completely free of charge, envisioned to initiate book exchange	Need to set up the pavilion during the night due to the vehicle access restriction on the main city square Lack of electricity on the site, Lack of security and no safeguarding of the structure and books, Book exchange was not accepted as imagined and the pavilion quickly ran out of books

Figure 5: Construction and assembling process (photos by Aleksandra Milovanović and Aleksandra Djordević)













Figure 7: Student exhibition (photos by Aleksandra Milovanović)



4. CONCLUSION

Pavillion was constructed in three research by design phases with the overall goal to involve citizens of all ages and backgrounds in the reading process. The realized pavilion, as a place for sharing and changing books, engaged three main design principles: (a) modularity - adequately dimensioned concerning the ergonomics of people and books, as well as possibilities for easy transport, (b) transformability and adaptibility to different situations and contexts by decomposing the basic elements, and (c) multicolority - designed to be attractor in space in a visually stimulative manner, by following the colors of the space and the existing physical structures (National Museum, National Theatre).

The analysis of the project design, development and implementation led to several main observations regarding the structure, students, engaged SME and Society and quality of public space. Regarding pavillion's leading design idea of assembling and disassembling, it is possible to conclude that this structural system was not used as much as it could, since after initial setting, the pavilion was dismantled and stored. When it comes to the student experience, stepping out from the solely academic environment and having opportunity to participate in project realization in the early stage of the career was evaluated as positive. Additionally, the employment of small entrepreneurial firms certainly has positive socio-economic sides, but also limitations, given that students didn't have opportunity to participate in the construction process due to the necessary skills and precision in order to assemble the elements. When it comes to the society and quality of public space, the introduction of a new structure in the plain open space invited people to interpret the structure in various ways and engage various activities by providing accessible, visualy pleasing and socialy interactive structure on the main city square. Nevertheless, the culture of reading and book exchange as most important project related activity was present only in first couple of weeks. Additionally, the Europe Readr Pavillion in Belgrade indicates two main aspects of the spatial quality: (1) flexibility and mobility are perceived both as a quality of the public space and a pavillion, and (2) by transfering pavillion to different contextual frameworks (both regarding physical and social conditions) it could be possible to verify the quality of the structure itself and its impact to the quality of the space. The project reveals the challenges of cooperation between the international organization,

the city, the university, and local companies, and the current lack of a desirable model of efficient intersectoral cooperation for innovative solutions that would ensure that similar projects are effectively implemented in the future. Having in mind that this was one of the first implemented and built projects of the MorphoLab, it is strongly believed that further development of laboratories of such kind could hold the key to bridging the gap between academic and practical action and lead to a more efficient model of Co-creation for enhancing the quality of public space.

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REFERENCES

- 1. The NEB High-Level Round Table. New European Bauhaus Concept Paper. Available online: https://europa.eu/neweuropean-bauhaus/system/files/2021-07/2021-06-30_New_European_Bauhaus_Concept_Paper_HLRT_FINAL.pdf#:~: text=The%20goal%20of%20the%20New,of%20the%20 European%20Green%20Deal (accessed on 14 January 2022).
- 2. European Commission. European Green Deal. Available online: https://ec.europa.eu/info/strategy/ priorities-2019-2024/ european-green-deal_en (accessed on 14 January 2022)
- 3. Bergant, D. (2021). Introductory note. In Europe Readr Serbia, Belgrade, https://issuu.com/redakcijaaf/docs/katalog_eu_readr_intro
- 4. Europe Readr (2021). List of events, available at https://europereadr.eu/en/events/