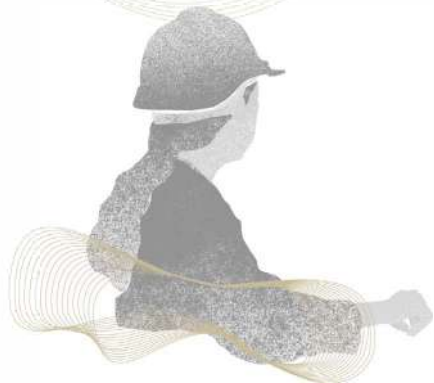




Asia-Pacific
Economic Cooperation

APEC Women Builders Creating Inclusive Future

*APEC Women Builders
Creating Inclusive Future*



Policy Partnership on Women and the Economy
December 2021

The graphic features the title 'APEC Women Builders Creating Inclusive Future' in a bold, sans-serif font. The text is layered over a background of faint, overlapping APEC member state logos. Decorative wavy lines in shades of gold and brown flow across the page, framing the text and adding a sense of movement and elegance.

APEC Women Builders Creating Inclusive Future

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Beyond What It Seems: Building the Structure of Diversity

APEC Women Builders Creating Inclusive Future

Architecture and engineering has been predominantly male-dominant industries throughout history. These are several factors that explain this enormous gender gap, from unconscious gender bias to the lack of adequate training to overall perceptions of women working in construction, which is traditionally a male-dominated career. But things are changing nowadays. It changed by not only the innovation of technology, but also the diversity and inclusion of gender, sociality and cultures. The necessary skills such as communication and the care of humanity and sociality, making soft skills are more important than before. We are seeing a growing number of female engineers and architects, who have brought in talents and resources that contribute to innovation and creation in the construction industry.

We've seen a lot of females play crucial and successful roles within these industries, the pay gap in between male and female still remained. In general, women in architecture and engineering earn 27% less than men in APEC region. Besides the difference in income, there are also other kinds of

unfriendly difficulties or inequalities within the working environment for females such as in some scenarios, women won't be taken seriously as men during the conversation or in a meeting.

"APEC Women Builders Creating Inclusive Future" proposed by Chinese Taipei seeks to encourage APEC economies to take measurements on assisting women in these industries to reduce wage gaps, foster related educational skills and gain female leaders who can greatly inspire the younger female generation to step in, stay in and step up. Aiming to improve women's possibilities on all aspects and diminishing the gender biases within the Architecture and Engineering industry.

This project is committed to gender equality and improve these industries with a more inclusive environment for female participants. For women have greatly shown how capable they are when it comes to realizing innovative ideas and at the same time provide an empathetic perspective for their passion, and they deserve equality from the world.

Authenticity inspires transformation. By identifying the causes of the gender pay gap and underrepresentation of women at senior level, and recognizing the potential benefits to integrate gender perspectives, this project set goals to encourage women in the architecture/engineering industry in a meaningful and practical way. We've interviewed ten extraordinary female role models from APEC economies who work in the Architecture and Engineering industry, and they shared their stories along with their aspiration generously. They represent the very best of the industry—each and every one is working to build a better environment for all who work in construction, regardless of economies, age or race.

We started the journey together from their childhood, where they would introduce their life stories, how they are educated, or what have influenced them to step into their professional industries. They also share their unique female philosophies of designing and building, and how they've conquered the gender stereotypes and biases throughout the years. Most importantly, they gave the most

genuine advice for new generations of female builders, who should always trust, encourage and believe in themselves. Despite all the challenges there might be, be who you are and have your own voices.

With the potential of building a more inclusive environment, we encourage females to develop their expertise in these fields and bravely pursue leadership positions without hesitation. From there, we could set forth the strategies to create an enabling environment in the architecture/engineering industry to attract and retain more women and accelerate the integration of women into the architecture/engineering industry together.



Rebuilding Challenges into Unique Process of Identity Construction, Voicing Your Own Tune of Life

Karlie Collis

Principal, Director and Structural Engineer at Northrop (Australia)

Spending long working hours on-site, crunching numbers behind computers, constructing newly-made buildings with steel and concrete, all of these might be the typical traits associated with construction engineering. “There is so much more than

that,” asserted by Karlie Collis, who is for now the Principal of Northrop Engineers in Australia, the representative for Structural College Board in Australia, and also a practitioner realizing her vision in a way of originality.



Sprouting outside the fences to reach the sky of vision

Being deeply involved in the design and documentation of large-scale multi-storey developments, Karlie steers her career to areas related residential, commercial and institutional projects, and extends her expertise to the field of modular construction. To label her accomplishments with any theoretical framing; however, is too hasty. "The main reason I landed in engineering was that I loved science and maths, but the practical side of it, I wasn't a theoretical person that loved sitting behind the computer." Candid and bright, Karlie points out the key temperaments to be engineers are skills of problem solving and formulating strategies to address them, which entails being attentive and creative in itself. As someone who tends to come up with solutions outside the box, Karlie embraces every event taking place during her life journey, the struggle or the bliss, all become the sporadic stars consisting constellation of her dream.

Karlie's autobiography starts with a chapter registered with free spirit. She grew up in a regional center of New South Wales; her father was a plumber and her mother a home maker. "I was raised to not have any

barriers," said Karlie. The principle of self-reliance was drilled to her by her mother, who expected her to be capable of maintaining her livelihood on her own, and also, to shoot for the stars. Her father was on the same side for encouraging her heading on what she wants. "Except for being a plumber," Karlie laughed, "he wanted me to have a career with more stability, and to be honest he was right, getting into engineering gave me a very stable career." With full support from her family, she set foot on the path toward engineering, the road not without thorns and spikes to get over for women, the minority of the sector.

Crossing the intersections of fear within and outside framework

"Sometimes we can be our own worst enemy, the inner fear that holds us back," Karlie mentioned what she had been gone through at early stage, the uneasiness and self-doubt which can be termed as the phenomenon of "imposter syndrome." According to its definitions, it belongs to a psychological pattern that the one fails to identify oneself to their accomplishments, feeling a persistent fear and doubt of not being qualified as others are, being "not good enough." "I didn't know that it had a name, and I manage to overcome it with all the positive people

around me.” Apparently, what Karlie had experienced was not limited to her personal circumstance, but the prevalent phenomenon, according to statistics, occurs more in high-achieving women.

Back to Karlie’s time when she entered engineering school, it was for women much tougher to build their identity construction. The invisibility of women’s career trajectory in engineering domain thus made female newcomers more likely to be entangled with uncertainty owing to a lack of women’s representation. To transform the liminal spaces for women in engineering industry, women’s participation and involvement are crucial. Voicing opinions and making sure that it’s being heard is what is regarded by Karlie as essential to boost one’s visibility, to build up confidence. Since engineering encompasses a range of specialties from design to project management and client liaison, it’s required strategies to elaborate one’s formulation on ideas and promote one’s self. “Women are sitting there and quietly achieving awesome things, people don’t hear about it.” To polish communication skills, Karlie joined Toastmaster, an international training organization for the purpose of promoting communication, public speaking and leadership. By adopting strategies to convey or explicate one’s ideas to foster self-image, affirmed by Karlie, is one of the

strengths that transforms women’s situatedness in the industry.

Bridging conversations with roads without bias, setting the line of equality from the get-go

Aside from being a seeker of excellence in her career, Karlie is also a single mother of a six-year-old boy, which brings its own challenges. She recalled that once she informed her clients of the designated time for the meeting to provide availability for school pick-up and drop-off, there was a nervousness in asking. It turned out that the clients showed nothing else but their understanding and were satisfied with the added value Karlie contributed to their cooperation. The concern Karlie had bear reflects how important social and working environment affect the ways people regard their working performance. Karlie started to move to modular construction when she became a single parent, the flexibility brought by the working mode of modular construction in terms of working time and methods not only enabling her to organize work and life, but also expanding her capacity to other area.

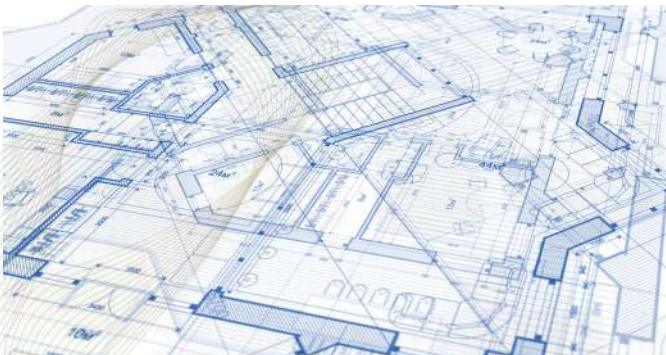
The building process of modular construction

efficiently saves manual labor for it lays focus on assembly, in which way the manufacturing can be conducted mostly off-site, rendering the working and transporting procedures more controllable. Especially for now when the global crisis of pandemic COVID-19 is uppermost in everyone's consciousness, modular construction becomes one of best solutions bringing greater mobility and adaptability. It is also environmentally sustainable in an ecological sense by utilizing recycled materials. The significance of flexibility thus becomes evident when it actually contributes to efficiency and inclusiveness of workforce. "I feel the responsibility myself at the level that I'm at in creating a culture where it's completely acceptable and expected that people bring their whole selves to work, all of those things are parts of the person." This is the work climate Karlle tends to maintain, a place of

equality where people don't have to hide their identities in order to be a qualified engineer.

To cope with the situations resulting from the outbreak of the pandemic, alternative approaches have been adopted including utilizing automation and remote working mode. The exponential growth of flexibility has proven that long working hours is not the factor directing to high-performance. Albeit the progressive transformation and rolling evolution of engineering industry, the paucity of women engineers till today has been there. This disparity can be dated back to the past about the way in which the engineering sector is delivered. "When I went through school, engineering was sold to you as, are you a person that wants to pull your toys apart and find out how they work to put them together? That didn't fit me," Karlle

said. What's behind such analogy is not only a deviation from the core value of engineering, but also the assumption entailing that the industry remains structured around masculine words. The essence of engineering is about



problem solving, and if we accentuate more on the social aspects of engineering, it can render the sector more appealing for females to relate to, Karlíe pointed out.

Being an advocate for equality and diversity, every single microclimate in industry matters in the path of transformation

To be enrolled as a student majoring in engineering is one thing, to be in the workforce of the industry can be another. Karlíe mentioned an anecdote about a male student who withdrew back from the field because of the sink and swim culture of the company he first began working for. "If you add that pressure to a female, the minority group in industry, it can have disastrous consequence." Having a positive workplace culture should be the first step. Karlíe was inspired and encouraged by her engineering boss when she just came out from university. His assertive attitude about "why not" has rooted deep in Karlíe, reminding her to proceed with courage for breaking through. For now, she is also an advocate, who endeavors to smooth the path ahead for newcomers, assisting them along the road to reach their dream as she did. In her company,

there's a toolbox for females about the basic things they need to know, to make them feel more grounded.

Karlíe believes that by means of increasing female representation and enhancing gender parity on all levels will effectively reduce the discrepancy between what women have been promised and what they actually experience. "You can't be what you can't see," Karlíe stressed. She wishes she could have had other female companions at the beginning of her career for further understanding of the industry and established personal contact. Besides the explicit inequality like pay gap, sometimes it's the implicit biases lurking in the workplace that deters women from staying in the field. Current studies have shown that there is a tendency to underestimate woman's opinions in male-dominated industries, and Karlíe has also confronted the similar situations during her career. Once she sensed the imbalance between her and other male counterparts regarding values of opinions, she would push her voice further, striking to maintain the balance between different opinions. "If we find a group of people that have all walked a different path, seeing and experiencing different things, we can come up with a better solution." This is what Karlíe believes and puts into practice, to break the limits and transform the structure of engineering sector toward diversity from within.

The Insights for the Invisible Gender Bias in the Engineering Industry

Cara Berghan

Systems Engineer at WSP in New Zealand (New Zealand)



As we all know, the engineering industry is one of the most male-dominated fields around the world and the working culture within engineering might lead to the underrepresentation of women. Cara Berghan is a young female engineer who graduated with an engineering degree specializing in Electrical and Electronics, and she's now working in the world-class technical experts of transportation---WSP in New Zealand as a Systems Engineer. Cara shared some insights of how she conquered obstacles and overcame gender biases alongside her career path.

Childhood in the garage surrounded by engineering possibilities

Cara grew up in a family as the youngest of three; both of her two brothers and her father are in similar industries to engineering. In her childhood, Cara spent a lot of time assisting her father in the garage when he fixed their cars and utilities. Under close supervision of her father, she would help take chainsaws apart to observe the structures of it and experienced how to rebuild them. Cara was surrounded by engineering related scenarios and hence she fostered great interests for problem solving, understanding the composition of machines and assembling components in that period. Cara grew up and became a very practical and logical person, and she naturally gravitated towards a role of engineering.

The obstacles for a beginner in the engineering industry

Cara is currently working with WSP New Zealand, which is a multidisciplinary engineering consultancy company. Cara is a part of the system engineering team and enjoys understanding the full scope of how various systems integrate and fit into core

business or project functions. Cara is now assisting a project which is related to the largest transport rail project ever in New Zealand and manages the requirements of the client and ensures the design teams are meeting those requirements. Cara represents a key person to communicate among all different aspects of this project, and she loves her position as she gets to be exposed to all aspects of the engineering industry.

Cara has worked as an engineer for 4 years now, yet she wasn't always so happy about her position. When she first entered the industry, the biggest challenge she had encountered in the beginning was being influenced by management in terms of her decision making regarding her career path. When asked about her aspiration for her career, Cara felt like her decision of aiming to become a project manager was discouraged by her superior. Due to lack of experience, Cara was unsure how to confidently push back on the discouragement that she felt she received. "I felt like I was put in a box and didn't get enough exposure to the opportunities that were available," said Cara. "It's quite easy to be stuck in a path that your manager has set for you.

Cara was very fortunate that an opportunity came to her when WSP was looking for a graduate engineer with an electrical engineering background to assist with a project outside of her work experience. Cara

jumped at the opportunity as she felt like she needed to step up and demonstrate that she had the skills to be able to succeed in the role and was encouraged to think outside the box. After discovering that she was enjoying the role and doing well, Cara was forced to imagine what her future would look like if she pursued that career path. With this positive experience, her focus has now shifted to ensuring that she is achieving the goals she sets for herself. She also places the importance on receiving guidance and advice from a range of people who have your best intentions in mind to help make decisions that may affect your future. She is now on a path that she feels she can excel in and has the support of managers and her team to thrive, develop professionally and succeed in whatever she dedicates herself to.

The invisible gender bias in the industry

When asked about the potential gender stereotypes in the engineering industry, Cara shared some examples in her working experience. For instance, when Cara has a meeting where she wants to exude confidence both internally and outwardly, she puts on her “power suit” look. For Cara, a combination of a nice blazer, a pair of plain pants, and white linen shirt sends out a message of “I am a professional engineer”. She wants

to empower herself to fight against the stereotypes for women within the engineering industry with her fashion choices. “If you don’t demonstrate how confident and professional you are, people won’t take you seriously.” Cara said while referring to the needs for her “power suit” for presentation.

“There is an unspoken expectation of what you should be and shouldn’t be wearing,” Since most of the employees in Cara’s office are men, thus the expectation is mostly put on women. As a matter of a fact, Cara has bold taste for fashion, and she’s gradually trying to let her personality out in her working space through her outfit choices. “If I had to put myself on a scale with a formal engineering consultancy industry look, I am probably not on that scale with what I am wearing today.” Said Cara with a smile on her face as she was wearing a dress with leopard patterns on it. “I want to present something unique which is quite out there for an engineer’s office”. For Cara believes that what a female stands for as a professional shouldn’t be judged by her outfits but her expertise.

The uniqueness of female engineer

Cara is still in her early stage of her career yet she’s proud of herself being a female engineer. In Cara’s observation, the female

counterparts in her office are usually empathetic and willing to provide assistance. For some, Cara says, she has noticed that there can be apprehension about gender imbalance in situations such as meetings, but she insists that females bring a different perspective. Cara thinks that with the diversity of thought, action and skills of female engineer, there is huge benefits in improving gender diversity in the engineering industry.

The potential educational improvement in New Zealand

When asked about what kind of improvement could be made for the circumstance of the engineering industry from the government, Cara thinks that increasing the exposure of Science, Technology, Engineering, and Mathematics (STEM) subjects to children in early stages of education might be a potential starting point. Children in New Zealand enter the education system at around 5 years old,

and they start to learn about the potential career possibilities in school through the subjects that are taught. Cara indicated that when she was a child, all the occupation possibilities they learned about were teachers, policemen, fire fighters, doctors and lawyers. Among these occupations, certain gender biases would be fostered for children. For instance, teachers are always females and doctors are usually males.

Cara pointed out that there are two aspects that could be improved. First, the idea of having engineering as a potential career path should be introduced to children earlier. Typically children in New Zealand misconceive engineering jobs as being a mechanic or a builder, so introducing the various career paths through STEM subjects is important to broadening a child's understanding. This is pertinent for young adults beginning to consider career pathways at secondary school level, because if you've never taken courses such as math and science, you won't be able to enter the engineering



major at tertiary education even if you want to enroll. "I never knew what engineering was until I was 17," said Cara. She thinks that there should be more exposure made for careers such as engineering or architecture related jobs prior to selecting subjects that can affect tertiary entry in to certain degrees. Cara wants to encourage children and high-school students in New Zealand to learn more about engineering and female role models engaging with students to explain the work they do so that the perception of "engineering" begins to shift.

Second, Cara proposed that through education, certain gender bias from different occupations should be removed. Cara as a young female who loves math, science and problem solving, would love to have the opportunity to gain an understanding in her early stage of life that occupations such as doctors, architects, and engineers are also possible for women. Cara hopes that through early education, gender bias could be eliminated efficiently and improve the working cultural experiences for females in the engineering industry.

Building up a career in engineering

"Whatever you do, you need to do it well," said Cara while asked about the suggestion for other young women who're considering engineering as a future career. "If you have a goal, be passionate about it and give your all to pursue it. If it doesn't work, you'd know it's not for you, but give yourself an opportunity to give it a go and be passionate about it. "As an independent female engineer who's now gradually building a career path in engineering, Cara also indicated the importance of balancing personal life for she loves diving, fishing, and embracing nature. "Give it your all for what you are doing, but at the same time build a life and work balance, because we can't put life on hold while we are working. We need to find a way to be the best version of ourselves at work and in our personal lives and I believe that is when we are thriving in both aspects." and this shows how she courageously pursues her career while keeping her own personality, identity and values.

Stay Easy with Your Gender: Pursuing Your Career Like This Optimist

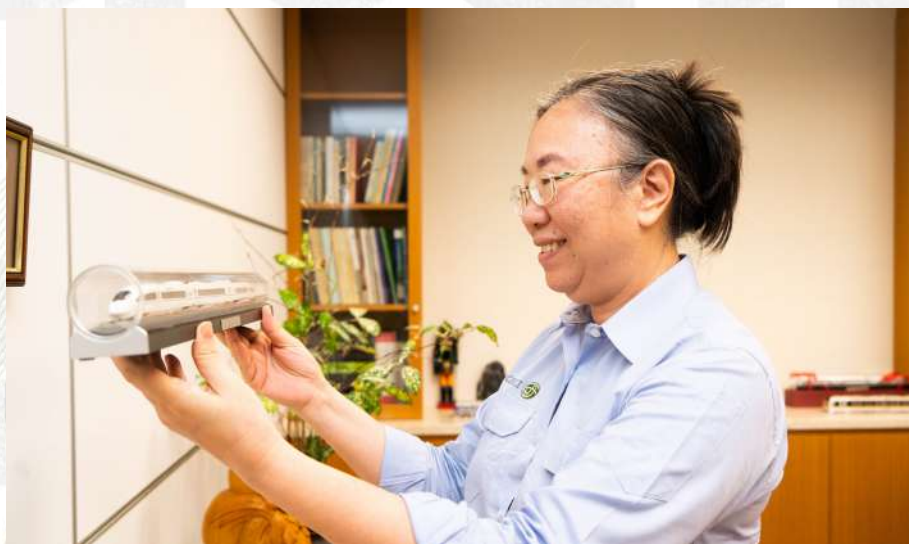
Chen You-Hua

Assistant Vice President at CECI Engineering Consultants (Chinese Taipei)

Unnaturally natural: more of what you see literally

“Who I am today seems to be natural all the way,” Chen You-Hua begins her story as if nothing could alter what has been

predestined in life. “I remembered when I was in elementary school, I was designated to participate in the county-wide art competition on representative of my school. After that, when my parents asked me what I want to be in the future, I did not hesitate a bit and answered ‘engineer.’ Since then I had set the



trajectory in a general way and followed it up thereafter.”

After receiving her bachelor degree from college, You-Hua had worked for an architectural firm as her first job, and was later referred to another engineering consulting corporation to continue her expertise in architecture. Taking her profession into practice, You-Hua started to make preliminary or structural designs for buildings, and Taipei Veterans General Hospital was one of them. Roughly the same era as You-Hua emerged, the Mass Rapid Transit (MRT) also began its initial phase those years to relieve the traffic congestion in Taipei. “During the expansion of Taipei MRT, I was lucky enough to get involved with its design and construction, where I was also assigned to be the manager of particular metro projects.”

“In support of these projects,” You-Hua adds, “I’ve realized that construction engineering itself is more than putting up buildings, or merely for the sake of construction. More often than not, good construction engineers are not just designers, but coordinators that accelerate a problem-solving process.” To carry out a successful project, You-Hua says, construction engineers must know who the users are, what their issues are, and how these can be fully addressed to



individual needs. When the construction engineering extends to the executive level of construction management, as You-Hua shares her experience in the MRT projects, a combination of key factors behind a public infrastructure should also be considered, such as its aesthetics, durability, and be that as it may, the compromise made between ideal and reality--the cost and maintenance fee. Besides thinking out of the box, You-Hua thinks that construction engineers or even the project managers should also learn to savor the taste of life, and meanwhile develop extreme sensitivity to it.

Every coin has two sides: environmentally friendly or unfriendly?

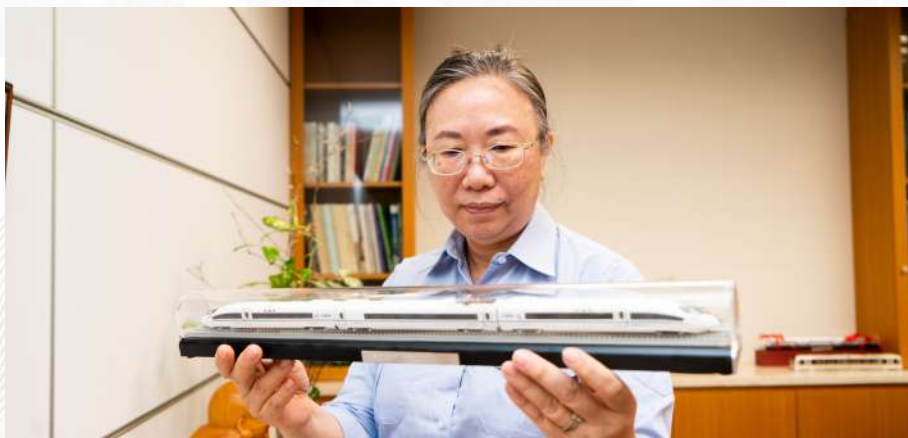
“Environmental sustainability itself can be self-contradictory,” You-Hua claims, for there are occasions that we may have wasted more to be “environmentally friendly” in our daily life. For instance, which ones are greener to

our nature, the receipts printed by wood-free thermal paper or the previous ones printed by regular paper that is biodegradable? Similar dilemma may occur in a public restroom when we choose paper towels over hand dryers after washing our hands.

As an architect before, You-Hua then cites two examples from the application of sunlight to architectures. Beside the commonly used thermal or nuclear power plants, we've been seeking alternatives for electricity generation, and solar power seems to be another way out. It is well known that the concept of converting energy from sunlight into electricity may seem clean and eco-friendly. Despite that, You-Hua argues, the disposal of used solar panels ends up in landfills, which can be costly and harmful to the environment for their toxic pollutants. To reduce the use

of electric lights, You-Hua describes, patios are cleverly designed with rain-protection roofs, which also allow natural lights to filter through. While sunlights are directed toward indoors and raise the room temperature to a degree that air-conditioning becomes a must, as far as You-Hua is concerned, the original green deeds turn out to be a double-edged sword that fights back against the climate.

"From these cases above, I would say, upon any implementation on the eco-friendly projects, it still requires a comprehensive assessment, for example, to calculate the overall carbon footprint or the overall impacts on the environment." After all, technological development is still occurring in its stage of process, which is still incomplete and left for further review even after our life ends.



Naturally born or socially mediated: what do you think?

From where she stands, You-Hua supposes that there are indeed innate differences between males and females, by which certain social expectations may have been built up on both genders or even culminated into a firm belief. When these imprinted into this society at all ages, You-Hua recalls, teenage girls had been infected by such beliefs and oriented towards liberal arts or relevant disciplines in the last few decades. On this basis, You-Hua reaches to a sub-conclusion that female engineers or architects have been fewer as a result, not to mention the senior-level or management positions held by women.

By the time of entering college or workforce after graduation, You-Hua states, it still depends on how individuals perceive such differences without self-limitation or too much focus on them. Whatever we believe may end up to be our reality, which is lurking in our backgrounds of thought. Rather than being socially determined, You-Hua reassures, most gender differences arise from the labels men and women apply by themselves. "In the context of construction engineering," You-Hua elaborates, "If you think yourself a woman and are unwilling to be wet with the slightest of sweat in the sun, you are actually attaching the gender stereotypical label and

confining yourself, not to mention any chances of promotion."

This issue of differences internalized within females should come up for discussion in the roles women have played in most families as well. "In most cases, males are the spoiled child raised by females themselves," You-Hua then illustrates with more anecdotes around her. "I have two classmates that marry each other, and you know what? The husband is the one who cooks in their family, as he is not quite satisfied with the wife's culinary skills." In this case, we can see how men share responsibilities to better their home lives, and women are not necessarily the only ones that agree on compromises by making their dishes more palatable.

Even in a traditional family, there are still chances to revert such "predetermined" roles. "I just cannot forget the harsh life my sister had been through when she got married." You-Hua recalls. "In her husband's family, my sister was merely the only one that carried out housechores; other family members would also randomly and strictly check if certain requirements were met. These did not seem to improve until her husband studied and learned to live alone in another city. After coming back from study, my brother-in-law started to split the daily chores, which also opened up an opportunity for my sister to temporarily shift the wife responsibilities and return to school again."

The art of stepping in and out: gender in mobility

As a graduate that majors in architecture, it seems not difficult to picture how You-Hua could have been virtually surrounded by males from study to work. “This could be an overstatement; I don’t really think it makes any difference in my life. Maybe it’s because of those I’ve met so far.” You-Hua confidently answers. “When I was still in college, there were more girls among my classmates who enrolled in the same year with me, compared with our juniors or seniors.” You-Hua proceeds, “I am no different from men. And I hadn’t shaken this faith until I worked part-time on the construction site during my long vacations. I was reminded not to crouch or kneel down on duty, because I was a young lady in skirt then. It was not a matter of gender differences, but of personal safety, as people there might be watching, be it intentionally or unintentionally.”

To put this incident aside, You-Hua keeps on taking her optimistic strides. “When I was employed, I was fortunate to have supervisors that provided me with plenty of opportunities regardless of my gender.” Given her promotion as a young female manager, You-Hua has ever wondered if she can make herself convincing to her fellows, especially the experienced males or those with a higher education. Without being caught in the binary oppositions between genders, namely, becoming more masculine by ridding herself of all female qualities, You-Hua resolves this self-doubt with self-understanding. By appealing to her natural instincts of soft power—being understanding, communicative, and negotiable, You-hua creates a more desired and cohesive atmosphere with her colleagues. For her, acting like other male managers is not the only way to compete, as it can eventually backfire. How to think outside the box and live together with our own gender features can be the lesson You-Hua teaches us at any moments of self-doubt.



Step In to Stand Up, Let It All Out: Create an Environment of One's Own

Barbara Rusinko

President of Bechtel Nuclear, Security & Environmental, Inc (NS&E) (The United States)



Interactions beyond the norm: a judgment call

“Learning how to interact and treat people with respect earlier, you’ll get that back.” Sticking to this principle of inclusivity over these thirty years at Bechtel, Barbara Rusinko has risen from an intern to president of a global business with more than 5,000 employees on four continents. “When I first started my full-time career in Bechtel,” Barbara recalls her initial stage, “I worked in the field with pipefitters and welders in the piping department, and I was one of the two women in that group. It was always a male-dominated workforce in construction. That became my norm, and it didn’t feel like something new going into the environment that was almost all men. They are really good at their craft, and I love working with them.” Barbara has learned a lot from them by asking

questions. “ ‘How do you weld like that,’ and they showed me. ‘Why do you measure that way,’ and they showed me.” I opened myself up to say, “I don’t know what you do, but what you do is amazing.” From where Barbara stands, being an engineer in construction doesn’t mean she knows all the answers. “Embracing the skilled workforce and getting them to help can make a world of difference.”

Some challenges are inevitably specific to females. “When I was pregnant with my first child, the crews I had worked with became very protective after a while.” When Barbara was on duty in construction, there were times she needed to climb up the ladders, which would constantly arouse the anxieties from her coworkers. “No way you are mounting these ladders,” to which Barbara responded, trying to ease their irrational worries, “But the doctor told me that I could climb the ladders, as long as my center of gravity was not too far out. I am five-feet tall, and it wouldn’t take long for that to happen.” Barbara would then say to her colleagues, “I can embrace your friendship because it came from a place of caring, not a place which you wanted to put women in.” For Barbara, it matters to recognize where the heart is from the person communicating with you. “The environment can absolutely affect things, and for women it can be very difficult. Unfortunately a small



number of people in the workforce don’t come with a good heart; they can be quite hateful. Surrounding yourself with people who have your back is really important.”

“The more women there are in these fields, the more people would catch themselves saying improper things.” Particularly wry comments are still present on the job sites, Barbara claims. “Sometimes I just ignore them depending on how egregious it is. Sometimes I’ll turn around and reply, ‘You know what? In this work environment, I’m confident and capable of being here.’ ” Besides the remarks that could be heard, there remains “unconscious bias” that does not intend to insult or undermine someone on purpose. For example: “During a discussion, I just hit upon an idea, but nobody reacted to it. Joe stated the same thing, and everybody said, ‘Wow that’s a good idea.’ My reaction



would be, ‘Thank you Joe for enhancing the idea that I mentioned five minutes ago.’ If that happens to another colleague, I would say, ‘It was a great piling on, to what Sally just said.’ It was not meant to slap somebody down or make the situation more awkward; it was just a gesture to check the moment and allow others to know what happened.” This engagement is an education process, Barbara contends, “You have to recognize it when you see it; when you do see it, you must be bold and confident to actually verbalize and interrupt the action.”

Independence from gender-specific roles: not just family matters

“Although I came from a traditional family where the father worked and the mother

stayed at home, my parents never fit the children into gender specific roles.” She adds, “My mother didn’t make me clean the house and cook all the time, as my brother also had to share some. So I was able to help my dad while he was working on a project.” Back to reality, however, there still exist some gender stereotypes. “Following my relatives’ Facebook posts, I could still see it from the pictures of their families and children: The boys got the hammer, and the girls got the kitchen stuff. We are continuing to, unfortunately, drill in some gender roles.” As such stereotyping from family comes to be perpetuated in teenagers, it could even hinder their development. From her observation on how boys and girls interact in middle school, Barbara hears comments from some girls, “I don’t want to look smarter than that boy who may not like me. It’s not necessarily cool to be the smart girl.” Barbara sighs, “That’s really disappointing, but it still exists. I don’t have any answer to how those reinforced gender roles can be dispelled, other than continuing to watch Captain Marvel—my favorite movie!”

What Barbara offers here might not be a clear-cut answer to the existing stereotypes created by others, but to the future vision: How can we motivate more women from the next generation to join the STEM fields? From

her experience as an active mentor to women of all ages, Barbara puts her solution in three buckets: It starts at home, then at school, later at work. “At home, parents should be given more opportunities to grasp what career options are out there for their kids, making sure the options include careers outside the gender norms that we have created over generations. Also, parents could be supportive when their children show an interest in math and science, even when they may not be good at these subjects or when parents themselves are no experts in those fields.” Schools can do likewise. “When we see some young girls drift away from math and science, we can refocus them to keep the option for STEM available as long as possible.” To bring the best of our future generation, Barbara pushes forward a more exciting idea, “Why not make it mandatory to take all the advanced courses, even if you don't plan on having a career in STEM?”

To fill in the last bucket of her solution, Barbara proceeds, “There's at least one silver lining that came from COVID-19, at least in our company.” In this hard time when this pandemic is still worsening, there still lies a blessing in disguise to entice more women in pursuit of their career. “We were never a work-from-home company, even though the whole organization of engineering also

includes office roles like project controls or finance and accounting. We have heavy projects where we're in the field watching things built in person. We can't do that job from home. When COVID-19 happened, however, we had to figure out another way out, and you know what? It's working. I don't love it, but it does provide flexibility to manage our home life more easily.” Due to the outbreak of this pandemic, certain policy adjustments made by the government have coincidentally linked up these three buckets of solutions. “Here in the US, most of our schools are on remote learning. Where parents used to drop their kids off at school on their way to work, they don't have that chance for now.” Looking at the bright side on COVID-19, Barbara affirms, “That is what we have learned and going forward, if the communities were to open up again, this



work-from-home policy would be carried on in some method.”

Bonding up women with their care: a better place to live

Barbara, as a major in mechanical engineering, where there have been less women graduates traditionally, has noticed more women going into biomed and environmental engineering rather than other disciplines. In the US and UK, Barbara has also worked on the nuclear waste clean-ups that came from the production of nuclear weapons during and after World War II. “We put those waste products in the processing plants and turn them into glass cylinders. Now the waste becomes immobilized.” She can’t hide her excitement, “It changes the community’s water tables, so that they are protected from pollution.”

To make this world a cleaner place to live, she thinks nuclear power a realistic solution

to climate change. “We know nuclear power in a lot of areas have been disputed, but we’re making power plants more resilient to challenges like Fukushima or Chernobyl.” Reflecting upon the incident of Fukushima, she sums up, “We are reminded again to further examine the potential risks, despite the fact that the plants had operated fine. Had the plants been designed a little bit differently, it wouldn’t have been catastrophic.”

“If I lean into a bit more traditional gender role for just a moment, I would say women care about the surroundings in which their children will grow up.” From this perspective, Barbara argues, women may be drawn more to the environment and thus display stronger affinity for cleaner energy sources. “I make this leap not to say that men don’t think that way or shouldn’t think that,” Barbara clarifies, “I just want to encourage more women to take up engineering, and maybe all the other fields can become supported.”

“The needs of the community are important. A big part of our efforts is to make sure the community is a better place to live.”



A Return to the Core of Life and Self: Realize Your Potential with Good Designs

Kyoko Arai

President at Arai Archibishop Studio (Japan)



Devising a plan for
architecture design?
A natural calling

“I had never imagined myself being an architect. Never ever intended so before. When I came to awareness, this has just become the case. If anything, maybe it’s because my father is an aircraft designer.” Under her father’s influence, Kyoko Arai applied for the department of architecture, and graduated from the faculty of engineering.

“I was also motivated by my uncle. He is also an architect. He then introduced to me works by Bruno Taut, a renowned German architect that had deep connections with Japan. I think who I am today can also be attributed to their influence.” By modeling after these roles, more than just an architect, Kyoko has oriented herself towards a higher level as an artist in her whole life.

Autonomy sought and gained: Interlocution among architects, users, and designs

After graduation, Kyoko had practiced her profession in the Tokyo Branch of a world famous architecture firm for seven years, until she launched her own studio. Kyoko started her career from the interior design of houses, shops, and restaurants, and thereafter extended her business to the building of whole offices. “I have been aiming to design a good place to live, a cozy office, as well as a clean clinic for the people around me.”

After certain periods upon the completion

of the buildings out of her design, Kyoko would go on a visit to follow up on how they have been utilized. “Seeing how my designs are used, for example, patients receiving treatments in the clinics, I’ve always rediscovered the pure joy of being part of these projects. Some owners even turn them into better use beyond my expectation, which even provides me with remarkable insights for my future design. Nothing else is more encouraging than seeing this, and all the efforts pay off.”

Reflecting upon the past projects she has run, Kyoko sums up as follows, “Despite various methods for putting forward construction plans to the present, generally speaking, there is a sequential operation procedure to the completion of an architecture, from its design, project management to the onsite supervision.” In this design-bid-build process, traditional though it may seem, none of the streamlined workflows above can be carried out by mere individuals. For architects like Kyoko, seamless collaboration should be emphasized to achieve cohesion within the team. “Even when a construction project has already come to an end, I may still receive requests from my clients for renovations

and extensions.” To facilitate successful collaboration in the phases of pre- and post-construction, Kyoko considers it a must for an architect to have high-quality communication, leading strategies, as well as future visions.

Historical trace of this gendered industry

“I don't want to distinguish between men and women, as I also have my own expertise.” In the eyes of Kyoko, not just limited to architects, any job title prefixed with “female” is redundant and unnecessary. “This is a man's world,” Kyoko adds. “Even though years have passed and I've learned how to cooperate with them for now, I still remember the exact moments when I had trouble working with men back to the beginning of my career, especially with the constructors. Nearly two decades ago, there had been a strained atmosphere between men and women in the architecture industry. At that time designers like us had shouldered more responsibilities for our clients than we do today.” It's not hard to imagine how these had been much burdened when some hidden

sexist assumptions were made upon female designers by their male colleagues.

“Nowadays, we've got more opportunities to see beautiful and clever female managers, coming to the construction site and supervising the project progress.” Kyoko elaborates more on such shifts of gender relations from the requests of her customers. With women's entry into the workforce, Kyoko observes, there also generates an increasing demand of at-home meeting rooms from her female clients. “In the past twenty years, the world for women has changed a lot.”

Who is afraid of housing designs: women's unique perspectives

Architecture design itself has inevitably covered a wide range of topics, but when it comes to the housing design, Kyoko asserts with confidence, women should excel better than men, for the image it conjures up used to be connected with mothers and young

children. “In the last century, at least for Japanese, women had spent most of their time home as housewives.”

Appealing to their instincts as women, Kyoko assumes that female designers can better understand different aspects of human behaviors inside their dwellings, including sleeping, eating, or cooking. With realistic assessments, they visualize these daily scenes and design accordingly to their clients’ needs. “I have faith in myself that I am capable of putting my customers’ ideas into practice, no matter how wild it could be. Soon after the project completion, same as women, I can feel their satisfaction expressed in their faces. They like my design.”

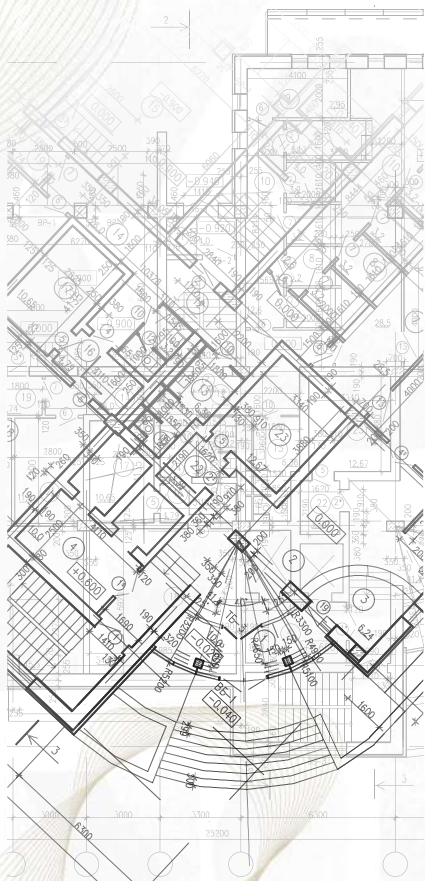
Gender talks, but never let it speak louder than actions

As an architect specializing in interior design, Kyoko modestly claims, what she can do is to help people live the best of their spaces with minor adjustments to certain environmental factors, such as the quality of the air, heating, ventilation, lighting and acoustics. From where Kyoko stands, setting any goals of social responsibility may be too far-reaching, but she still expects herself to pass her torch to the new blood in any event. “Living in an era that is constantly changing, education itself is important for nourishing our future

generation, and it takes a great amount of time and money. If a word of advice should be given to the government, I would say not to cut down the budget on education. Offer more subsidies to the vocational schools or training institutions.”

Considering the development of the rising architects, the promotion of women in specific appears to be more severe than that of men, as Kyoko indicates. “Some women are forced to leave their offices when they get married.” According to relevant research, regardless of genders, in order to stand a chance of getting promoted, people working in the architecture or engineering industry need to stay longer. The moment female professionals choose to place themselves in the job market, they are meanwhile caught in such dilemmas: To leave, or not to leave? That is a question.





“I suppose there are many other female pioneers being active in diverse professions before me, and I hope they could also get more involved to create pathways for the next generation.” With more fresh blood pumped in, we’ll never lose motivation in fostering a diverse workforce. “In so nurturing, not just women per se, I believe both genders can mutually inspire each other and benefit this society as an end, with a view to creating an inclusive environment in Asia and all over the world.”

“Girls, be ambitious!”

Kyoko ends the interview with this powerful sentence, encouraging the young women to remain positive and take challenges in acquiring different professions. To advent with this evolving world, Kyoko advocates for those who are planning to enter the architecture field. “At first, you might be dazzled by many kinds of techniques in this sector, like general design, structural design, services design, modeling, 3-dimension expressions, and so on. But once you familiarize yourself with them and keep advancing yourself, you will reap what you sow through your career.”

Warmer Than an Iron Lady: Ignite Your Career with Her Light of Passion

Tan Pei Ing
Founder of PI Architect (Malaysia)

Public spirit raised and revived

Regarded as Malaysia's Iron Lady of Construction, Tan Pei Ing is not just celebrated for her leadership and contribution in architecture. "Work should not only be work," Pei Ing has also indulged her passion for philanthropy and society over the years.

Confident yet humble as she is, Pei Ing has listed different role models that have positive influence in different phases of her life. For Pei Ing, role models are not always celebrities; they can be those she has closely interacted with. Besides the who's who in architecture like Frank Lloyd Wright, Pei Ing's family also plays a decisive role in what she is now. Pei Ing has not only developed the spirit of perseverance and commitment from her mother and grandmother; her father also



sets her a practical example by involvement in different voluntary organizations. “One chopstick is easily broken while a bundle of chopsticks are not,” Pei Ing continues, “By working collectively as a group, we are able to advocate policies that affect the industry.”

From her family, Pei Ing learns how and why she can contribute to this society. “Architecture,” as she puts it, “is a combination of arts and science. It has the power of shaping the environment we live in and greatly impacting the society.” With determination to be part of that process, Pei Ing has embarked on her career as an architect.

Architecture that lends her voice of conscience

Living in the Asia-Pacific Region that is mostly affected by natural disasters, architects like Pei Ing are characterized by a sedulous attention to the socially responsible architecture for public good. They promote a number of initiatives in disaster management to reduce the impact of disasters. During her term as the ARCASIA president, Pei Ing has successfully introduced the inaugural forums that cover issues from pre- and post-disaster management to cultural heritage

and conservation. To carry out these action plans, Pei Ing has also collaborated with all the subsequent ARCASIA leaders to set up a group of ARCASIA Emergency Architects. With such intensive green involvement, Pei Ing suggests, architects could have gone out of their way to integrate sustainability and resilience into their work.

“Architecture is” Pei Ing defines, “for the community, society and humanity.” Regarding the philosophy of design, Pei Ing assumes that architects should strive to work towards different solutions for the sake of inclusivity, rather than fixing themselves to only one design approach. As Pei Ing sees it, anything fixed is predetermined by ideology. “Architecture itself should be innovative and adaptable to different environments, societies and local cultures,” as Pei Ing states, in a hope that the community can be revitalized with the existing heritage for instance.



Beyond the preconception on women: capability wins out

After accomplishing her study in University of Melbourne, Pei Ing returned to Malaysia in a hard time of global recession. Back to the mid-80s, it seemed tough for any employment, not to mention a female in the male-dominated workplace culture. People tend to overgeneralize their beliefs about women, and thus may have a solid impression on what female architects may seem. Professional though she can be, Pei Ing had difficulty in even getting a job after several many interviews. “Many perceived that ladies are not suitable and incapable of handling rough construction sites.” She finally ended up working in a small-medium architecture firm upon a family friend’s recommendation.

“Don’t fear to convey your thoughts and don’t let rejection hinder your passion,” Pei Ing asserts with a smile of confidence at the struggles she may have been through. “No matter what you do or where you go, never give up and always believe in yourself.” Pei Ing has trained herself to be tough and rising to all challenges in her life. From where Pei Ing stands, challenges make her stronger. Whenever anyone is skeptical if women are

capable enough to do certain things, Pei Ing would set on to prove she could do it better than anyone else.

A crevice we may once fall into unwittingly

“Don’t call me a female architect. Just call me an architect.” Pei Ing continues, “We acquire an equivalent qualification with the same training. We deserve a fair treatment for our capability.”

“During my early years of work,” Pei Ing recounts, “I had encountered gender biases and stereotypes from all sectors of the industry. I had to work a lot harder to prove my capability and earn the respect.” Despite the recent progress towards women’s rights and gender equality, certain characteristics are still ascribed to women in the construction



industry. “Females are thought to be sensitive, adaptable, and detail-oriented, and these characteristics also lead to their better communication and collaborative skills that influence their approach to design.” But for Pei Ing, these are all stereotypes. “Even if we study in the same university or come from the same family, we are all different individuals.”

When these stereotypes are reproduced to the workplace without consciousness, on Pei Ing’s terms, they even facilitate the sexist behaviors such as the pay gap in the labor market, especially in some developed regions where this phenomenon seems least likely to happen. Based on various surveys, Pei Ing says, women still get less pay for the same position. “Generally, women are expected to perform much more unpaid work than men, provide care services for the family members, not to mention child rearing and household chores. The social and cultural norms also stifle women’s progress.”

Standing up for a better right of work: balance, flexibility, advancement

“Never stay quiet; fight for your own right.” Pei Ing encourages us, “Don’t be afraid to take up the challenge, make yourself visible



and heard and do not feel intimidated.” In fact, Pei Ing has carried these mottos out by advocating for gender equity in her whole life. Although men today share a little more housework and childcare, it goes without saying that women still fulfill most obligations of domestic chores or long-term care for other family members. The female role in such day-to-day nurturing and family support can be the outcome of history, as can also be traced in Pei Ing’s refining of the Policy on Gender Equity in Architecture.

Planning on creating an environment that is friendly to female professionals, Pei Ing advises, we should implement work-life balance policies like flexible working arrangements. Maybe the remote work policy rolled out amid the spread of Covid-19 can also be encouraged for the working parents. “Maybe the work-from-home SOP under the lockdown measures of this pandemic

can help in the future,” Pei Ing sees this risk as a chance to overturn the public’s misconception on remote work, which doesn’t necessarily lend itself to productivity.

With a view to continuous growth for female professionals, based on Pei Ing, mentorship programs should be developed as well for the industry. It serves to inspire younger female architects and strengthen their beliefs in success and career advancement by the architectural fraternity in this industry. “We should upgrade ourselves to be competitive and adaptable to changes,” just like what Pei Ing has adhered to in her career and paid it forward to the youth generation. In a word, female professionals should be entitled to choose to come back after their maternal leave, or at any moment when they are ready.

What doesn’t kill you makes you stronger

“My passion for architecture helped me to overcome all these hurdles, and my desire to excel pushed me to persevere. The tough journey has helped me to build my strength and resilience.” Pei Ing indeed sets a positive outlook for the adversities she has overcome. “Understand your strength and weakness. Build on your strength and learn to deal with your weakness,” she motivates us not to be obsessed with any adversity as if it were the last grain of rice. “Embrace our femininity and uniqueness to overcome our self-imposed dogma. Constantly remind ourselves that we are just as capable, if not more in certain areas.”



“Life is not fair, get used to it,” Pei Ing quotes from Bill Gates. “It is true that life is not fair, and the world does not offer a level playing field in all aspects of life.” Pei Ing ends, “Gender inequality is just one of them. So, rather than crying and complaining, love what you do and do great in what you love, and I think success would follow. Most importantly, you stay as a happy person.”

Shaping the Coming Communities of Diversity: Articulating Collected Archives and Singularities

Deidre Brown

The head of the school of Architecture and Planning at the University of Auckland (New Zealand)



In our young age, we were naturally fascinated by the idea of “what if,” and to change the world into a better place usually came to the fore as a great choice. However, plenty of factors during the pathway to our setting goal may hinder us from getting the point. What’s acquired to bridge the gap between vision and reality is exactly a series of practical actions characteristic of not only creativeness, but also direction and determination. Regarding all of these, Deidre Brown’s life story best exemplifies the aforementioned process, whose contribution to the architectural sector renders the vision of “what if” into practical ongoing advancement.

Laying out the blueprints of characteristics to raise a shared grounding consisting of groundings

As the descent of Ngapuhi and Ngati Kahu Māori tribe, Deidre is the first indigenous woman elected a head of the School of Architecture and Planning. Her position remarks not only her personal accomplishment but also an indicator of inclusiveness for architectural sector in New Zealand. Crossing the boundaries is one of the very core value inhabiting Deidre's proactive actions. Specializing in the fields of Māori and Pacific architectural and art history, Deidre has been expanding her capacities across different sectors, so are her contribution and transformation toward branches of architecture and humanity. "My approach to architecture is values-based, and around this are about equities of access, not just for people using building, but for people accessing the industry as well," she noted with emphasis.

Deidre entered architecture school around the late 1980s, it was the time that gender balance was comparatively much more tilted, the time that women have been written out of mainstream architectural history. There were only about one-fifth female students enrolled, and people's perceptions toward

gender parity was not bias free even within the community itself. Deidre recalled that once she and a couple of other female students asked for further information about the assignments, they received from the lecturer the reply carrying other assumption: "I thought you girls would be coming down to ask me this, I'll make this very simple for you. It's like baking a cake. My assignment is like a recipe and all the resources that you do are like ingredients coming into it." Obviously, what was hinted behind such analogy was more than the subjective gender bias associating women with domestic space, it was a symptom resulted from stereotypical speculation, the unidimensional collected past in need to be revised.

Crossing over between sectors and times, shaping transformation containing history

Fortunately, we never lack of pioneer of thoughts. One of Deidre's inspirational figure was the architect Rewi Thompson, who believed that women and people from other cultures could make difference to building industry. He had a way of associating ideas taking motivation from what he saw around the building, the landscape that contained

history, the place that people lived upon from all different ethnicities. All together carry forms and rhythms of singularities of the place, the epitome of all individuals of history, and the design of the building has to be arranged in a way of resonance into this grand composition.

When we talk about history, it's about reconsidering a path marked by forerunners with standpoints, likewise, what we have built up would be a heritage that extends itself in both a metaphorical and practical way. This is also one of the main reasons that drew Deidre to the field of architecture, to create the lineage of legacy that not only fits into the fabric of society, but also connects back to the heritage of the era. "What we build will be the legacy for society that will last for next 100 to 150 years, and I can't imagine a greater contribution than that." This is where Deidre stands, not simply as a designer or historian, but also a mentor and guardian working with 100 graduates a year, preparing them to change environments in a way highly positive and being conscious of how the buildings works with environments and existing structures of society.

Embracing multi-elements as basis to create different flows of stream

Being both Māori and English descent, Deidre has been exposed to and possess well understanding of two cultures. According to Deidre, Māori buildings conveys a strong affiliation between environment and ethnic identity, the designs of the construction are mainly custom based revealing their ways of living. However, this tradition changed with colonization, which has impacted on the way they built and how much they can build. As someone who is from the community and also familiar with European archetypes, Deidre is mindful of historical context of New Zealand, and how to establish a shared archive that preserves multiplicity of voices, identities, and insights from different cultures, and most of all, to enable the training that allows individuals to progress as a people. The idea proposed by Deidre is not a homogeneous whole, but the dynamic collections ensuring the access for all. For achieving the flexibility of access, Deidre has adjusted entrance qualification to a degree of inclusiveness, applies don't necessarily come straight from secondary school to university. She also attempts to construct the curricula in a way of multicultural, provides teaching materials characteristics of global reach.

Architects bear tremendous social responsibilities to provide safe and habitable places, for what's behind stratum of theoretical formalism of architecture is

actually day-to-day living. There are old houses no longer suitable for extended families in New Zealand, the limited space had already put habitants' healthy condition at risk. To improve such status of building, Deidre has been working with the School of Population Health from the University of Otago to enhance well being of the dwellers. "Women have affiliative and collaborative modes of working that enable better outcomes, these are the particular strengths women bring to bear. Because of this consultative approach and highly participatory way of working, the stronger results are thus delivered," Deidre thus confirmed.

Broaden the image with the lens of perspectives

The awareness of flexibility of working raised by women also changes perspectives regarding doing architecture. Since architecture requires long working hours, in the past, women were used to be made to choose between being a homemaker and a builder; however, transformation has been attempted due to technological assistance and people's changing life styles. Architecture is not necessarily a nine to five job, and the work doesn't have to be conducted on site. Taking care of your family and developing life career are no longer at two opposite ends of scale,

architects for now are capable of arranging them into their life agenda.

The increasing number of women working within the profession, and their demanding of flexible working hours made employers more mindful of working policies, prompting men to rethink the way they engage with work as well, Deidre observed. A symposium held last year by Architecture + Women New Zealand carried a message about men architects as primary caregivers so as to show that the flexibility, pay-equity and parenthood would be seen as social issues rather than women's issues. Deidre's husband is one of the speakers of the forum, who is also an architect and at home father. But still, besides all of these progressions having been made, there are some areas of the structure need to be scrutinized. According to statistics, although New Zealand has close gender parity among graduates, the number of women architects seeking work in industry falls far short. The combination of factors behind such phenomenon includes the suspension of registration, equity issue and lack of flexibility. In New Zealand and also Australia, architects have to become registered to call themselves architects, but the registration does not enable the flexibility in an effective way for work across number of sectors within the construction industry. Despite of this fact, women are seeking, or more likely, devoted



to the field of architecture with different approaches. They expand and redefine architectural sector through means of urban planning, research conducting, project management or collaborating with other sectors. Under the leadership of New Zealand incumbent prime minister, gender equity is on the agenda across different sectors, what's required aftermath is to continue engaging more supports and communications from companies and the public, Deidre emphasized.

Making the access flexible for all, expanding the architectural sector marked by singularities

Despite the implementation of policies and programs, gender stereotypes are not departing entirely from people's mindsets. The issue of pay gap and challenges women face in leadership positions are across every sector in the world. That's the main reason why the proportion of representations of all identities including gender, ethnicities and cultures is significant. What we need is not only a figure in particular who breaks the glass ceiling, but also what comes after it, the collected voices that keep the flow to influence people's perspectives.

Changes are not obtained merely at a certain moment but earned with continuing efforts. Deidre specified that "we need more platforms and organizations such as Architecture + Women New Zealand and Parlour, to raise women architects' visibility and profile in the industry, and make sure women can be enrolled of leadership to ensure that people don't perpetuate gender bias." Till now, there are over half of their enrolled students are woman, and over half are of Asian descents within the school. "There's always a way," Deidre concluded with this remark, straight and determined. Through engaging together and making the access shared by each, the coming communities comprised of diverse elements are thus shaping, with all different ways.

A Perspective from a Female Architectural Role Model: What You Do Must Make People's Life Better

"Architectural projects must make people's lives better, therefore an ecosystem and community based design process remains the most sustainable model to undertake. In the long term, Peace reigns in the hearts of the people. " ---Joy' Martinez Onozawa

Certified Green Lifestyle Design Professional, Architect, Environment Planner (The Philippines)

Joy is no regular architect, and we can have a glimpse of her uniqueness via the above philosophy of hers. For Joy, architecture is more of a methodology, a tool that she is capable of utilizing in order to improve people's quality of life. Besides being a certified green design professional architect, Joy is also an environment planner who loves to apply Mother Nature's elements into her design. With her 33 years of integrative eco-architectural expertise, Joy manages to focus her passion on empowering local community and handling their ecology by creating benefits from managing local resources such as people's skills, traditional culture, and natural assets. She pursues sustainability in her developing process by marrying the undertaking of design and planning with managing the creative use of local resources in multiple aspects of the project development.



A childhood of exploring sustainability, creativity, and self-sufficient mindset

Having grown up in an urban farm, Joy was greatly influenced by her parents. In her childhood, Joy's family managed self-sufficiency by planting and obtaining resources they needed from the home garden. Her parents built their house on their own and also encouraged their children to be creative with their hands in making their toys and obtaining building material from the nearby natural environment. Joy and her brothers were trained to think, build, and be innovative all the time. They never needed to buy anything from the market. Because of this upbringing, Joy grew up being enthusiastic about using sustainable



methods of designing and maximizing the natural resources in the most efficient and creative way. She gradually built up this lifestyle which inspired her greatly with the core concept "Everything you need is already available in nature".

Besides fostering Joy with a sustainable and self-sufficient life style, her parents were also very enthusiastic about charity work. They built a church for their local community, and enhanced the community lifestyle by providing everyone a place to gather and to share thoughts and ideas. Joy's parents believed that no one should live alone. The

experience of forming a mutual supporting network within local community had greatly inspired Joy, and with this kind of mindset, her architectural works and designs started to focus on making people's lives better.

In her childhood, Joy once laid her passion in dancing. Besides the love for sketching and building, Joy also wanted to become a ballet dancer when she was a child, and she started studying ballet at 4 years old. For a period of time in her childhood, she embraced the life of a young ballerina in a ballet school and wanted to pursue a career as a ballet dancer. Discouraged to do so by her parents she found herself registering for Architecture, and it was fate. Joy was always good at math and designing structures, and she soon fell greatly in love with Architecture. It was perfect for her to combine both creativity and passion for improving people's life. She then started the journey as an architect and never looked back.

An architect that designs lifestyles to improve life

With her childhood experiences and life style in mind, Joy soon realized that Architecture was not just about designing buildings. The happiness of the marginalized locals living around her projects and their livelihood improvement were far more important and meaningful for Joy. She thought that Architecture was not only about designing spaces, but also about designing lifestyles, experiences, and community relationships. In her architectural projects, Joy brings together

the clients, the government, and the local communities into her design process. Joy has a design philosophy of creating win-win scenarios for not only the officials, but also the local community who live around the construction location with her sustainable architectural designs and resource planning.

Resource mapping and fulfilling aspirations for local communities

Joy would first start development with a process called "Resource mapping", which is to get to know the local communities and how could they potentially collaborate with this project. She would then start communicating with them by asking, "What is your aspiration in life?" For when those aspirations are expressed clearly, Joy could then start her negotiating process with the government and the clients to address these aspirations. With the condition of fulfilling the project in time, the clients would support Joy's plans for a good cause, and the local government would also assist where they could, specially with trainings.

For instance, for the Carmen Safari Development Project in Cebu, with the consent of her client, Joy requested the

contractors for the project to hire the people from nearby communities to improve their income. The local communities were able to fulfill their aspirations of providing education for their children. Once the resort was built, they were hired as staff later on. These employment opportunities further provided them with a stable long-term incomes to maintain their aspiration in life.

In other projects, the resource mapping produced information on handcrafting expertise of local females. Joy included them in her projects for their amazing handcraft abilities. While Joy was designing and building the resorts, local women became a great force in producing light fixtures made with local bamboo. Joy would send her team to fetch the finished work from their home, therefore these women could participate in these projects without leaving their children alone. These women are proud

of themselves for being able to produce bamboo house fixtures, make an income, and also fulfill their duties as mothers at home. Joy achieved social changes by providing the client an opportunity to make the most out of their architectural projects and at the same time assist the local communities in improving their livelihood step by step. "If you want to design with sustainability,



you don't design a sustainable building, you design a sustainable life. We are not designing sustainable buildings so that the building could survive, instead we design in order to ensure people's survival," said Joy with a smile on her face.

Embracing the nurturing instinct of women and maximize the uniqueness of the female perspective within architecture

Architecture is as we know, a comparatively male-dominant industry, yet Joy, as a successful female architect, has constructed a path for herself and set a wonderful role model for all. Joy is a loving and caring female and she strongly believes that as a female architect, she is using her nurturing instinct in aiming to make people's lives better. She strongly believes that female architects should think outside the box and use their motherly instinct to take the lead in their practice, thus providing the world with a perspective totally different from men. While asked about the advices for female architects around the world, Joy said firmly: "Be who you are. Don't try to copy what men are doing, we as women have our own way of expression. Embrace the fact that we are women, and

don't try to compete with men. Look at your strength and proceed with that mindset."

In the architecture industry, women are just as capable as men and collaboration with each other is crucial in providing innovative points of view in the project. Being just that, a female architect, empowered Joy with a strong will of improving people's lives better. She is always persistent when it comes to this design philosophy. Joy doesn't yield easily for she sees the merit and values behind her philosophy so she is adamant about this process. Joy never stops believing in herself for she sees the living evidence of how many people's lives are greatly improved through her efforts. "I love life, I love being a woman, and I love people. I care about the way they live," said Joy, a sustainable professional architect, a loving environment planner, and a true role model for women.



Design with Nature: Putting Empathy into Architecture

Ching-Hwa Chang

Founding Partner at Bio-architecture Formosana (Chinese Taipei)

The aspirations to become an architect

Born and raised in Tainan, Ching-Hwa Chang describes her family as “a typical civil servant household.” At that time, women were expected to play their traditional role in the society such as following the “three

obediences and four virtues.” However, she longed for a challenging career. To break the gender stereotype, Ching-Hwa determined to jump out of the comfort zone and committed herself to the industry of architecture, a field where women were a minority.

After graduating from university, Ching-Hwa experienced the larger scale of urban related



planning and renewal projects as a research assistant in National Taiwan University. In the past, people undervalued the need of protecting and preserving cultural heritages. It's because of the urban renewal that people started to become aware of the importance of the preservation of historic architectures. From the incident, Ching-Hwa realized that every individual can make contribution to the world if they can take their own responsibility. From the perspective of architects, they are capable of making influential decisions and contributions to society. It motivated Ching-Hwa to study abroad architecture abroad.

Ching-Hwa's studies in the USA taught her the significance of green energy in the environment related design. She was inspired by the concept of "design with nature" and passive houses advocated by professor in University of Pennsylvania, and became more conscious of the importance of ecology. The learning experience reminded Ching-Hwa of a core responsibility of architects: Design for peaceful coexistence with nature.

The philosophy of architecture: to improve people's daily lives

As an architect, Ching-Hwa believes that architecture encourages the environmental value and enhances lives. Architecture is a combination of art, design, and engineering. Because the process of creating and designing relies heavily on logical thinking, it is imperative that architects learn to embrace a myriad of challenges every day.

The architectural philosophy of improving people's daily lives motivates Ching-Hwa to pursue her career as a green architect. Everyone needs to deal with various challenges at workplace, and so do architects. Ching-Hwa holds the belief that we all experience life differently, so what architects should do is to envision a wide range of styles of living and design buildings to fulfill the diverse needs of the users. For instance, architects need to come up with the design of specific buildings such as nursery homes, kindergartens, schools

and hospitals even though they don't have the living experiences. These buildings play essential roles for humans from cradle to grave, which make our lives more convenient and enrich our lives. As a result, architects are required to imagine various ways of living in the process of designing.

Moreover, due to the advance of technology, the living environment has changed a lot than what people went through in the past. Apart from taking people's basic need into consideration, architects should also think of how to make a connection between the users and the outside world. Instead of designing a confined environment, architects need to consider whether the living space can help users maintain social connectedness and experience sensory stimulation. Therefore, architects should recognize the personality and the needs of users while designing.

The belief in making positive impacts on the society

Keeping in mind her belief that architects should make positive contributions to society

and shoulder social responsibility, Ching-Hwa has participated in many infrastructure plans since returning to her homeland. From her point of view, the purpose of infrastructure is to serve people and make people live their lives efficiently. When Ching-Hwa was responsible for designing Beitou Library, the initial concept was to create a harmonious environment and encourage people to read. Ching-Hwa also shared another renewal plan of infrastructure, Miao Li Station, with us. She hopes the station can become an icon of Miao Li County, a place that makes tourists feel back home, and attract visitors to visit Miao Li County again. The whole team decided to use the pattern of traditional Hakka printed cloth as the background of the station. They also integrated the concept of "unity and interaction" in the design process. Ching-Hwa expects the station to be able to give citizens a place to interact with each other and connect to the world, which can bring positive effects to the society.

"Mother earth treats human beings equally. Overexploiting natural resources will only lead to a devastating outcome for all of us." Ching-Hwa wants to encourage all architects to think about how architecture impacts

nature. Ching-Hwa believes that female architects are able to show more empathy and understanding due to maternal instincts, which is an asset for architectural design. To motivate more female architects to contribute themselves to the industry, Ching-Hwa said that the concept of coexistence with nature should be always be kept in mind. “We want to make the world become a better place and to take environmental issues into consideration. It should be the prime responsibility of a professional architect.”

Personality and profession are the keys, not gender

“The policy makers are making efforts to improve gender equality in the workplace,” said Ching-Hwa. She pointed out that most career women have a dilemma where they need to strike a careful balance between family and work.

Luckily, the public sector has implemented many policies to promote women’s rights at work. Specific laws require employers to offer

reasonable time and space accommodations for breastfeeding. They also provide child care subsidies for families with children under 12. Moreover, the competitions of infrastructural designs from architecture offer young and talented architects more opportunities. “These policies have given our female architects a friendlier working environment than in any other economy in the Asia-Pacific region.”

With regard to Bio-Architecture Formosana, they are a relatively gender-balanced team of over 100 employees. The major difference between the male and female workers’ workload here is that more male employees work at the construction sites while more female employees work in the office.





In the past, only few women determined to join the industry of architecture because they had the responsibility to put more focus on their domestic life. Ching-Hwa said that as a woman, we are born to play various roles. We need to learn how to adapt to the changing roles at the workplace or in the family all the time, which is very challenging for female architects.

Even though there seems to be many obstacles for women to join the architectural field, more and more female students are determined to study in the department of architecture now. The phenomenon shows

that gender is not a major concern for women when they join the architectural sphere. On the contrary, they tend to choose their career based on their own interest.

In addition to some biological differences, Ching-Hwa states that the influential factor of being a professional architect is not gender, but rather one's expertise and personality. Being an architect requires being decisive and undertaking pressures while working in diverse environments. Therefore, how an architect reacts to spontaneous situations in the workplace is more crucial than gender identity.

A Female Role Model Who Breaks Through Stereotypes and Supports Women in Architecture

Li-Yu Hsu

Chair of Board at Women in Architecture Taiwan [WAT] (Chinese Taipei)



A quite but artistic childhood, the starting point of a creative mind

Li-Yu Hsu didn't know she would become an architect when she was a child, in fact, she didn't know what an architect really is until

much later in her life. When Li-Yu was a child, she was encouraged to experience and explore art such as painting, for her family considered painting as a typical activity for a young girl to be participating. Li-Yu performed well in school, and outside from school, painting became a great part of her childhood.

Li-Yu mentioned that she chose painting because there is a comparatively lower threshold to start with. Once she set foot on the world of painting, she immediately fell in love with it. "Painting was my way of self-expression," said Li-Yu. She was very quiet as a child yet she could spend her whole day drawing without a word. She spoke her mind through drawing while she at the same time conveyed stories from her experience,

her dream, and her imagination. Later in her life while she was about to enter college, she encountered a choice of life. Her family expected her to become an art teacher or a fine artist for these are representations of decent, well-educated, lady-like occupations.

The true meaning of creativity: bring happiness for others without limitation

Li-Yu started thinking about what she really wanted to do while facing her biggest crossroad in her life at the time, and she seeks advice from her past self. She recalled her childhood memories and she figured that how she obtained happiness via painting is through the positive interaction she brought to the viewers. She felt like fine art pieces belong to a museum, or a collector, which means there is limited access for the general public. Yet Li-Yu wanted her creations to have a different value. She wanted to have the maximum positive impact, which brings all people happiness, and on her way of searching for such expertise, architecture came into her picture. “I want to create something wonderful, and at the same time I can share that wonderful creation to others without limitation.” said Li-Yu.

“My initial intention of starting my life as an architect was that I believe that people



who are capable of creating actually own a gift of bringing happiness to others. “Said Li-Yu, “This is what I imagine an architect should be doing, and also the reason why I chose this path.” Architecture is a great part of people’s life, it composes streets, cities, and every home owned by human beings. In other words, architecture could be one of the most influential forms of creation, and this is why Li-Yu set her path in this direction. She intended to not only obtain joyfulness for herself while creating architecture, but also make others happy with her work.

Female architect in this male-dominant industry fighting against stereotypes

Speaking of how it is to be a female architect in this comparatively male-dominant area Li-Yu thinks that there are pros and cons. For instance, she feels being a female architect, showing a sense of empathy could gain the trust from the clients fast because they would feel that females could understand their needs better. Yet on the other hand, trust could also be quite difficult to gain for female architects when it comes to dealing with construction sites, and etc. In Li-Yu’s experience, she feels that, as an Asian female, she is constantly



being reminded of her character as a wife, a mother, and a lady. With this kind of stereotype, the roles that women should play in society, Li-Yu found it difficult to be treated professionally sometimes.

When it comes to stereotypes and the potential situation that comes with it, Li-Yu has her own way of dealing with them. Clients with stereotypes often examine female architects and their capabilities with a certain perspective, and they build negative assumptions regarding strength, professional abilities, and certain knowledge. Li-Yu has her own theory for this situation. "For instance, if a male architect could be seen as an individual who can provide 100 tons of strength, a female on the other hand, would often be seen as an individual who can only provide 10 tons of strength for people with a stereotype," said Li-Yu. "If you ask me how I can ever make up this 90 tons gap, my answer is I can't. I will not fight against this stereotype; instead, I am going to tell you another possibility. I might be as light as a feather, yet I have the intelligence to lift a rock." said Li-Yu proudly. With her remarkable perspective for her own strength, Li-Yu had conquered countless obstacles associated with gender stereotypes.

She interviewed her client to see if they understood her strength as a female architect and if they would accept the feather theory before she would continue the collaboration.

Li-Yu thinks that there are also learning coming from the unpleasant experiences regarding stereotypes. For instance, females who work in the architecture field tend to be eager to prove themselves in certain circumstances because they might face more challenges compared to men. Their abilities of problem solving are often very well trained, and for Li-Yu, she feels like her ability of thinking has evolved greatly since she started her career as a no regular architect. "The more challenges you encounter, the smarter you will become." Said Li-Yu with a smile on her face.

This learning started with Li-Yu's experience of architecture education in college. "In the architecture course I attended," she recalled. "We girls are assigned to do just about the same thing as our male counterparts, without any exceptions." Li-Yu did all the heavy physical work in school and she trained herself to solve problems step by step until she worked everything out properly. Her ability of processing obstacles were greatly enhanced during her studies, and later on, during her career. She faced barriers and overcame them whether it's in the form of hard lifting physical actions, or a shape of a gender stereotype.

The WAT and its three core tasks that support female architects

Li-Yu's extraordinary persistence and great confidence as a female architect has led her to the position as the president for the WAT association. For WAT, there are three core tasks: document "her story", listen to "her voice", and support "her persistence".

During the initial discussions whether we need an association for female architects, Li-Yu asked herself: why do we need to have an independent association just for females? What is this association for? The idea of the first core task of WAT, which is documenting "her story", started with a series of observations on the life of female architects. "The career life of an architect is not very long, considering how long it would take for us to accomplish one project. Usually it takes years," said Li-Yu. "There is only so much you can do in one lifetime." Li-Yu figured that it is more so for a female compared to a male architect for women has to play multiple roles such as a mother and a wife, hence less of their professional side would be seen or remembered. Sometimes not even the families of the female architects know what they were doing with their career yet there are so many great and memorable stories. So who can reserve these great stories? Li-Yu thought by

documenting and telling them for all female architects, the history of architecture could be more balanced and diverse. What's more, we can see the world of architecture from a different perspective.

In 2017, the ruling party proposed a bill alteration of the criminal law number 193 which aggravate the responsibility of architects in the realm of Offense of Negligent Manslaughter, with a possibility of being sentenced to death. This action had greatly damaged the image and professional confidence of all architects in the island and Li-Yu along with all the female architects decided to do something about it. The members in WAT started writing to the mainstream media and newspapers regarding the true opinions from architects and how things should change instead of progressing laws that go against human rights. This is the very first time WAT as a force of female architects stood up for the whole architecture world and expressed "her voice" firmly. "We fought for architects, and human rights." Li-Yu said proudly, "and this is the best starting point for WAT."

Last but not least, speaking of the third core task of WAT---supporting "her persistence", WAT specified the importance of supporting female architects for female architects would face a complex change of characters once they get married. Once female architects

transform a wife, a mother and with children, the balance between work and life becomes difficult. Li-Yu expressed a common scenario when a female architect becomes a wife or a mother; she has to choose between her family and her job. "Because we only have so much time in one day, many females would choose to put their priority on the families." With this dilemma occurring, WAT created a community of female architects and at the same time offered a platform for support, communication and interaction with.



A piece of advice for young spirits: Embrace your passion, fight for it, and doors will be opened for you

When it comes to advice for young women who are considering a career in architecture, Li-Yu believes that if one can persist with what she loves, there is absolutely nothing that can defeat you. "Yes, there will be obstacles everywhere, yet if you conquer them, you will shine like a star," said Li-Yu. For Li-Yu, architecture is quite an extraordinary expertise. It is a continuous journey of opening one's eyesight to a brand new level. On the path of this journey one would keep completing and updating one's recognition and true self. "If you are determined to step up to the world of architecture," said Li-Yu with a smile on her face, "you are determined to have a broad and unlimited life. For the learning of architecture could be infinite." For Li-Yu who started her journey as a shy, quiet creator, fulfilling and building a career as a proud female architect had not only transformed her into a confident, brave woman, but also led her to a path of supporting other female architects.

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