

Architecture Mediates

If This Then That

In January 2014, it was announced that Google had purchased Nest Labs, the company that is known for their smart thermostats that over time teaches itself to get to know their users energy preferences. Here-with Google buys their way into the Internet of Things to become the spider in the web of interacting household devices. Smart thermostats are amazing things, they control your comfort zones in your protective shell, and you can play with the controller from a distance. One stays connected although disembodied from the house. Now think of all controlling devices as wirelessly connected to your smartphone. Recently I found out about the IFTTT gate (If This Then That), an app that lets you connect between 77 channels. Each channel is connected to another, so doing something on one channel triggers one of the 76 other channels. For example, dropping a file in Dropbox activates Philips Hue (2012) and my LED lights will dim or light up when I want them to do that. Via IFTTT (ifttt.com), I can connect anything to anything. This is the world of the Internet of Things and People that we are entering: connect things to things, things to people, people to people and things to people, and the other way round. What effect will these developments have on the built environment? Will this only affect climatic (temperature) and atmospheric (lights) devices that are loosely connected to the building materials, or could this form of intelligence possible invade into the design process and in the performance of the buildings components of the next generation buildings?

Home

Maarten Schinkel — the economic commentator for the Dutch newspaper, NRC — wrote a column in which he made an especially remarkable observation. He noticed that all goods and services that you order from and for your couch at home have become substantially cheaper over the last decade. Think smartphones, iPods, iPads, iPhones, TV sets, computers, game software, even the couches from where you order have become cheaper. But then, everything you would fancy to do outdoors has become substantially more expensive: musea, stadium, concerts, sports, drinks in cafés.

The new economy facilitates you to stay at home, there is where the new economy unfolds. Think 3d printing, even the maker economy hits home. There is this wonderful paradox, the more open, international, and globally universal the economy becomes, the closer it comes to your home, where your heart is. The global and the local have forged a super alliance, global and local are connecting via your brains and via your body, using your home as their vehicle. Homes mediate.

Levels of Detail

But why would you want to play with such levels of connectivity? Just because. Because you can; because it is out there and you want to go out—or stay inside as we have seen above—and play. Homo Ludens is back (Johan Huizinga, 1938), Huizinga's foresight was right, role competition has become a dominant factor in contemporary digital culture. Digital culture has sped the game factor up exponentially. Since game play is interactive in essence, the appeal of interactivity has rendered game play into a binding factor in virtually all disciplines. While simulation is a form of play, computer simulations provide scientists with a deeper understanding of the macro and micro secrets of life. Role playing has become a key factor for collaborative design, since we know now how to define the various forms of expertise more precisely and how to connect experts of different breed together. The challenge is how to set up communication protocols between different species, ranging from smart devices to people with smartphones or Google glasses. The rules of play are written in digits, in ones and zeros; they are written in software scripts. Virtual worlds have no secrets, we know every tick of virtual life. All mysteries that are created in the Avatar movie (James Cameron, 2009) are precisely understood effects, the mystery is simulated and played, we are not afraid. As in any game, also in the open design game, one can discern levels of skill. Both amateurs and professionals can play the design game. And just like in any social game, the design game knows many levels. The better one performs, the higher the level one steps in to. In the building industry, these levels are labeled as levels of detail, which more or less coincide with the progress of the design to construction and usage. In all levels of details one meets new players, new challenges, new threats. The inhabiting of the realized building is the ultimate award of a successfully played design game.

Just Them

And indeed, as in any game, it is played in real time. Events happen, they can only take place in the game. Meaning that the designers are acting upon the game structure in real time, as a mandatory rule continuously connected to each other. Everyone must be connected to everyone and every dataset in real time. Those who are not connected, those people

who are not playing the game, they are simply out, not relevant, they have no influence on the development of the design. And anyone who is connected has a potential effect on the outcome of the design. They could be the client, they could be users, the quantity surveyor, or the investor; all players are considered to be designers in their own right. Their input has influence on the structure and on the qualities of the design proposal, and therefore they are, in principle, co-designers of the open design game. This is how the design tasks will become proportionally distributed among its players. Those people who are in the game must have the authorization to represent their expertise, they are also fully responsible for the correctness of the data that are put into the design game. They have the key, just them.

Bodies in Motion

Much of our time we are carried by mobile extensions of our homes; we drive cars, we ride bikes, we squeeze ourselves in airplanes, or travel as co-pilot 100km high up in the air to experience 3 minutes of weightlessness with the Space Xpedition Corporation (www.spacexc.com/en/home/). Our protective home shells are no longer exclusively fixed to the ground, they now travel with us, and we travel with them, we team up with them. A car has no meaning without a driver, a highway has no meaning without cars running on it, no building has any reason to exist without people navigating through them and hiding in their nooks and crannies. The car is a tool for augmented speed of navigation, the building is a tool for the daily speed of life on legs. The building is an interface for people's movements, ranging from fast-paced to stand-still, from the high energy sports arena to the sleepiness of the dormitory. The building is likewise an instrument that is played by its users. The same instrument is played differently by different users, people compose their interiors to match their lifestyle. In this interior design game, the inhabitants closely cooperate with the smart devices like thermostats, light dimmers, LCD screens, espresso machines, and frigidaires. Occupants live their interior design game, and, as expected based on the customization revolution, they will live inside the open design game to build their future homes.

Carriers of Information

The ultimate operation (I don't think that the ultimate REASON for human existence is to deliver information, but it IS a major operation that only living things are capable of acting) of us living beings is to transport information from one place to the other. Plants are data carriers; they first produce seeds, and, after a while, make sure the seeds are blown in the wind as to transport the genetic data meant for reproduction. Animals are data carriers; they do not only reproduce but also carry seeds to remote places; they stir up the soil, they remix all sorts of organic and non-organic materi-

als, they are mobile data carriers. And people are not only data carriers—just check your shopping bags, your briefcase, your long distance travel suitcase, people are extreme re-mixers—on a local and global scale. We humans transport and recombine data in any form: books, materials, mobile data, bits and bytes, products, instruments, food, clothes, skis, dirt, bugs, anything. Now, if the occupants are such data carriers, what role does the built environment play as seen from this perspective? The point that I am going to make is that, just as people can be seen as data carriers, the buildings components that piece together our built environment will soon be considered data carriers.

Just That, Just Then, Just There, Just Therefore

Basically, the person formerly known as the consumer, always has been given the illusion to be a player. Now there is software and hardware to actually involve you as an actor. Participating in a multi-player game, interacting via social media, acting as a (co)-designer. The spectator becomes the actor, acting as one of the cells in the real time open design game, which ultimately is a game of life (Game of Life, James Conway, 1970). In the end, life is a computation processing ubiquitous data, a very large executable, starting from any possible initial condition and leading towards any possible sequel. Spectators become actors in a continuous real time design process, the design game unfolding permanently, the fabrication process directly being connected to the design process. Just as consumers will become actors, the components that buildings are made of will start to behave, true active components will be reading, processing and conveying data, connected to their nearest neighbors and via them connected to the world/universe. One of the key characteristics of actors is that no actor is the same; they are unique in their constitution and behavior. While not a single person is the same, not a single building component will be same in the Internet of Things and People. No more series of the same products, but series of unique components, customized for that position, in that period of time, on that particular location, only for that reason, will constitute the built environment. Mapping this thought concept more deeply, not a single molecule, atom, or quantum bit can be precisely similar to any other. They do look similar from a distance, but, seen from their internal drive, they are unique. And they must be unique in order to negotiate with their neighbors. They must be unique to keep this executable life going forward, not just going in a circles, not becoming trapped in a circular loop.

Today's Practice

Although the above observations seem to lack practical value for the building practice, I must strongly argue for the opposite. It acknowledges the need for addressable and verifiable uniqueness of all players, including

people and things, as to enter the relational/behavioral era of the 21st century. This era is shaped by the demanding effects of an ubiquitous Internet of social media, smartphones, of parametric design, scripting, file to factory procedures, design to production, CNC manufacturing, algorithmic design, multi-headed 3D printing, telematics, avatars, speech recognition, Google Glass, ATV's, robots, smart homes. This is the era of connectivity, of building relations, of data exchange. It is the end of the era of mass production, consumerism, absorbing your daily 2-3 hours of television, it is ultimately the end of a vertically organised representative democracy and therewith the end of the distribution economy. It is the start of a quantum society, where all things and people are actors in a dynamic system, where none and nothing is the same, and yet communicating and negotiating with neighbors on the global scale better and more intense than ever. It is the rise and shine of the long tail of the economy, where all inhabitants are both globally connected and locally productive. It will change the way you think, you will think different and entangle yourself with other things and people in ways you never would have imagined before. Apple's campaign Think Different, as created by advertisement agency TBWA\Chiat\Day (Venice, California, 1997), represented an attitude that was already felt deeply among the early adopters of the new economy. Buildings become the dynamic interface.

Author

Kas Oosterhuis studied architecture at the TU Delft. In 1987-88 he taught at the London AA and worked/lived in Theo van Doesburg's studio in Paris together with visual artist Ilona Lénárd. Their studio — renamed into ONL [Oosterhuis_Lénárd] in 2004 has received numerous awards. Since 2007 Oosterhuis is a registered architect in Hungary, executing as General Designer the CET project. Since 2000 Oosterhuis has been professor of digital design methods at the TU Delft, where he is leading his Hyperbody group, a center for Nonstandard and Interactive Architecture. He is also director of the protoSPACE Lab and member of the Dutch Building Information Council. In his book *Towards a New Kind of Building, a Designers Guide to Nonstandard Architecture* (2011) Oosterhuis embraces the paradigm shift from standard to nonstandard structures and from static to dynamic buildings. He is the co-founder of the Attila Foundation and, since 2013, editor-in-chief of the new scientific journal *Next Generation Building*.

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