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## Click! Lego and Modularity in The Factory of The Future

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2002

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*Citation for published version (APA):*

Willim, R. (2002). *Click! Lego and Modularity in The Factory of The Future*. Paper presented at 7th EASA - European Association of Social Anthropologist Conference, Copenhagen, Denmark.

*Total number of authors:*

1

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# Click!

## -LEGO and Modularity in The Factory of The Future

Presented at the EASA conference in Copenhagen August 2002.

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A few years ago, at the end of the 1990s, what was to be called the new economy emerged in the USA and Europe. The new economy was to be characterized by a faith in uninterrupted economic growth and rapid technical innovation. The mass media reported on new companies which would conquer the future as the value of their shares rose on the stock market. One type of company was the Internet consultancies. An example of these was the Swedish Framfab (short for Framtidsfabriken, meaning “Factory of the Future”). They were to produce Internet solutions for customers such as IKEA and Volvo. But above all they produced hopes and dreams about a bright, IT-supported future. Headed by the charismatic CEO Jonas Birgersson, there was talk of how Framfab would both create and conquer the future.

What actually happened in companies like Framfab? There seemed to be a tension between the high-flown optimistic rhetoric about a whole new networked world and the actual activities pursued in the companies of the new economy. It was with an interest in this tension that I began an ethnological study of Framfab in 1999. I wanted to investigate the culture that was shaped in a company that placed itself on the leading edge of the new economy. I spent time at one of the company’s offices, interviewing the employees and observing what went on. The result of my study then became my doctoral dissertation. This paper can be seen as a “lite version” of some of the arguments which I make in the dissertation.

One point of access to my analysis of work at Framfab was to ask which objects were crucial there. Computers were the company’s primary means of production and were of course important, but a number of pastel-colored pieces of plastic also acquired a significant role.

### **The lure of plastic bricks**

Place: Framfab’s office in the Ideon science park, Lund, Sweden.

Time: Fall 1999

Lines of black tape formed tracks across the light-colored wooden floors of the office. They ran between computer tables, groups of armchairs, and IKEA shelves. Some boxes contained a multitude of plastic blocks put together. It looked like Lego. It was Lego, but not the pieces I recognized from my childhood, the cubes and triangles and chubby little plastic men with primitive claw grips and petrified, harmless smiles that never disappeared no matter what you did to them.

The kind of Lego gathered in boxes and standing on shelves in the office belonged to a different category of product known as Mindstorms. The product was the result of collaboration between Lego and MIT (Massachusetts Institute of Technology). It consisted of relatively advanced Lego kits which could be steered with the aid of computer-based software. The reason for Lego lying in a box at Framfab was that some of the people who worked in the office had started a play project. The plastic pieces contained meaning in several ways.

Lego can be linked to the way in which images of Framfab as a company were created. The Mindstorms components and the colorful Lego blocks in the box caught the attention of visitors when they came to the office. They attracted people. When the prime minister, Göran Persson, and the minister of trade, Leif Pagrotsky, visited Framfab in 1999, they stopped with interest beside the small pieces of

plastic and half-finished Mindstorms robots. Andreas Carlgren from the Center Party—like many others—was also fascinated by the Lego blocks. They lay there in a box, like a materialization of a playful attitude and IT activities like those reflected in Douglas Coupland's acclaimed book *Microserfs* (1995), in which Lego is associated with young people in the IT business. In many respects, the Mindstorm props in the office harmonized with the image of innovative, deeply involved hackers.

The Lego pieces opened up a field of associations for visitors like Göran Persson. They caused visitors' fantasies and associations to move to some extent in a predetermined direction. Lego, and especially an advanced category of product like Mindstorms, signaled a childlike curiosity and an innovative attitude that harmonized with the image of Framfab painted in newspapers and on television. The blocks were like a discreet promise of playfully simple innovative products and growth. The pieces of Lego in their box became a motor that powered fantasies and images of the company. Through their power to symbolize and steer associations, they fitted the placing of Framfab in various media, particularly as a backdrop to politicians' encounter with the young company. Lego was allowed to symbolize the playful company.

## **Work and play**

Playing at work, or making work feel playful, was crucial to a company like Framfab around the turn of the millennium. The theme of playful work echoed in the talk of the new economy and in the demand for constant innovation.

On 17 July 2000 there was an article in the magazine *Infoworld* about the dismantling of what was called the "entrenched rules of the Old Economy," the first of which declared that there was no room to have fun at work. The management magazine *Fast Company* also questioned whether work had to be boring: "Where is it written that important assignments must be carried out with an air of grim determination? That breakthrough ideas can only emerge in a business-as-usual environment? That work must always feel like, well, work? (*Fast Company* Jan/Feb 2000). Rolf Jensen, head of the Copenhagen Institute for Futures Studies, declared that tomorrow's work will have the character of "hard fun" (1999), meaning that play will be integrated with work.

The theme of play was present at Framfab. The Lego Mindstorms project was an example of how the office was simultaneously a playroom. Those who started it all and brought the Lego blocks to Framfab were moreover working on a project for which Lego was not wholly unimportant. The work and play on the project led to the product known as Brikks (see [www.brikks.com](http://www.brikks.com)). Brikks is a kind of web portal developed out of a product that Framfab designed for the telecom company Ericsson. There are links between Brikks and Lego.

## **Modularity**

The media scholar Lev Manovich has pointed out the basic features and some essential principles of what he calls "new media"; I prefer the term digital media. The most important of these media today is the computer. New or digital media, according to Manovich, are characterized by modularity, which means that objects within the framework of new media consist of (more or less) independent parts. These parts are discrete, that is, separate, units. The parts of digital objects consist in turn of smaller discrete parts, and so on, all the way down to bits (binary digits), the basic building blocks of digital media, or Manovich's new media (Manovich, 2001:31).

The product Brikks, which Framfab started to develop at the end of the 1990s, is a platform for delivering digital content and services. It is supposed to be adaptable to different types of technology: computers, personal digital assistants (PDAs), WAP gadgets, and so on. Brikks is based on a modular structure. The product is built up of a number of discrete parts which are intended to make things easier

for user and developer alike. Brikks is thus in line with one of the central features of digital media: modularity.

A computer, like most other digital media, is a highly complex artifact. Using various modular solutions is a way to simplify both the use and the development of the technology. As a stage in this simplification it may be necessary to have models to think with. In the development of Brikks, something physical and material was therefore used as an aid to thought, to pinpoint what was going on under the shell of the digital equipment. This physical and material aid was Lego.

Lego is a concept that harmonizes in large measure with the modularity of computers. Lego blocks are discrete modules that can be clicked together to make larger objects. Lego was thus an excellent conceptual tool for thinking with, especially during the development of Brikks, which emphasized the modularity of digital media.

The link between Lego and computers, as I have mentioned, was made explicit in the novel *Microserfs* by the American author Douglas Coupland. The book is a fictional account of a gang of young people on the west coast of the USA who first work together at Microsoft's office in Seattle, and who then start a company of their own farther south, in California. Lego plays a central part in the book. The plastic toy is crucial for the development of a program called *Oop!*, a kind of software Lego. Coupland's *Oop!* was not found at the Ideon office or in the development of Brikks, but another oop was. The name that Coupland had used for the software Lego product in the book was not chosen at random or because it sounds funny. In programming contexts the abbreviation OOP stands for Object-Oriented Programming. The object orientation in this type of programming is based on a modular concept and is thus linked to the modularity of computers. Oop is a central feature of much of program development, including Brikks.

Within the oop framework, the modularity of computers makes it easy to reuse previously created objects. Discrete parts can be selected and incorporated in new objects. In conceptual terms this is like Lego. Building with Lego means using prefabricated bricks which can be combined, within some limits, into various creations. Prefabrication recurs in several contexts connected with IT around the turn of the millennium.

## **Prefab future**

Place: The Riviera cinema in Stockholm

Time: February 2000

Framfab's CEO Jonas Birgersson stood on the stage dressed in the yellow and blue shirt of the Swedish national ice hockey team. He was presenting the company's accounts. In addition, he put on a show in which the high point came when the CEO threw a brick through a pane of glass. This was a symbolic gesture. The meaning was "Brikks breaks Windows". Framfab's product Brikks would oust the Windows operative system. According to this gesture, Brikks would be, if not an operative system, then at least a substitute for one, something new and revolutionary in the computer world with the potential to eliminate market leaders like Microsoft. This description, however, was not really adequate. Several people at Framfab, particularly those working with Brikks, thought that Birgersson's symbolic breaking of the glass was a poor illustration of what Brikks was. Instead of eliminating Microsoft Windows, the work with Brikks involved conspicuous use of Microsoft's products.

Despite the simplified and partly incorrect symbolism, the CEO's gesture was important. It was significant since it indicated a direction. For analysts, competitors, and customers, the company was presenting a product that was not yet available on the market. In the IT business this type of product preannouncement is called vaporware (see Hoxmeier, 2000), vapor as in steam or mist. Vaporware is technology that has not yet been launched. It is a future product which is vaguely discernible as in a fog. By preannouncing products, a company gives signals about what the future may be envisioned to

look like—a future including the company’s products. A company like Framfab could thus claim that the future was already being produced within its walls. The future was prefabricated rhetorically by Framfab (The Factory of the Future). When a company points the direction in this way, it should be viewed in relation to the fact that a great many other actors portrayed the future as complex and highly unpredictable.

Birgersson’s announcement of Brikks at the Riviera in Stockholm should also be seen in relation to the way the product was otherwise presented. The simple, almost Lego-like, character of the concept was emphasized. In the marketing it was combined with a parallel product concept developed by a subsidiary of Framfab, Hårdvarubolaget (“The Hardware Company”). This other concept, called Blokks, consists of physical components which, together with a broadband connection and software modules in the form of Brikks, makes up a complete electronic solution for consumers. The products, in the form of vaporware, were launched with the slogan “just klikk on!” It was a simple matter of clicking modules or components together, just like Lego—prefabricated parts combined within the framework of a standardized concept.

In connection with computers and digital technology, Lego can serve as a concept with which to think. Around 2000 it became part of a field of associations surrounding the work at Framfab and what the company stood for. It included links both to fundamental principles of computers and to a colorful, playful attitude. The Legos lying in a box at the Ideon office should be viewed in relation to Blokks, Brikks, and the staking of claims to the future with the aid of vaporware. The future may seem unpredictable, but at the Lego box in the Ideon office, certain contours could be conjured up.

## **Click together and take apart**

Lego, Brikks, the young, growing, innovative company, colorful little pieces ingenious in their simplicity. Ready to click together. When put together, the pieces ended up in a field of associations in which Framfab became an exciting new company, worth investing in, and with a rising stock value.

In a way, the modular resemblance to Lego can also be linked to the organization of Framfab. The Framfab group consisted of different “cells,” which were quite simply the different offices in the group. Each cell consisted of about fifty people divided into a number of projects. The idea of the cells was that they would be relatively independent units. The organization thus consisted of a number of components put together in the form of cells, a kind of modular organization. These cells were also in a way prefabricated. Various smaller companies were bought up by Framfab, becoming the nucleus of new cells within the Framfab group. It was a form of growth whereby new offices and small companies were quickly integrated in the group, like Lego bricks assembled on a green plastic base. Different colors made it a colorful whole. Framfab’s growth was in large measure modular, like a Lego structure that just got bigger and bigger. Several companies in the same business as Framfab, for example, Adcore, Cell Network, and Icon Medialab also represented rapid growth through the purchase of smaller companies. Through its emphasis on the cell concept, however, Framfab stood out with its modular organization.

The rise and growth lasted some way into the year 2000. In the spring the bubble of the new economy burst. Just before the downturn in March 2000, Framfab had introduced guidelines for the group. Form and corporate policy were to become more austere, and this was to be communicated within the group. A new graphic profile was designed, with a central color that was to be called Framfab green. However, the company would soon find itself in a crisis. The group was decimated as piece after piece was quickly removed from the organization. Using the Lego metaphor, one could say that, after a few years, all that was left was the green Framfab base. Lego is ingenious: it can be taken apart just as quickly as it can be clicked together. What happened to the pieces of Framfab that were taken apart is a more intricate question. It is clear, however, that the people who lost their jobs at short notice—unlike Lego men—did not keep their smiles.

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