

Excerpt from
Error Code: Woman
When the digital world
is shaped without women

Folkod kvinnna

När kvinnorna saknas
i den digitala utvecklingen

Anna-Karin Edstedt Bonamy
Anne-Marie Eklund Löwinder
Ann-Therése Enarsson
Dora Palfi
Ebtisam Mohammedsalih
Katarina Blomkvist
Sandra Mattsson

Redaktör: Ann-Therése Enarsson

Hjalmarson & Högberg

Future digitalization must be feminist

Ann-Therése Enarsson

In order to break the trend of fewer and fewer women pursuing careers in the tech industry, the future of digitalization must be feminist, says Ann-Therése Enarsson, CEO of the think tank Futurion. She gives us a historical perspective on the important women in the construction of our digital world, and why women's interests need to be safeguarded in the future digitalization.

Women programmed the first computers

"Men built the machines, but women programmed them."

– Elsa-Karin Boestad-Nilsson

When digitalization was a young phenomenon, programming was not a male occupation in Sweden. Rather, it was the female assistants who performed advanced and crucial calculations that laid the foundation for the groundbreaking progress made during the 1950s and 1960s. This contrasts with the image of the IT industry of today, with a significant overrepresentation of men in the country's computer science programs and at the helm of Swedish tech companies and export successes.

Elsa-Karin Boestad-Nilsson came to the Swedish National Defence Research Institute (FOA) in 1948 after studying mathematics and physics at Stockholm University. With a bachelor's degree in hand, Boestad-Nilsson, at age 23, became the first female academic in the physics department.

During her first years at FOA, she worked with calculations for control engineering calculations and calculating vibrations in research projects developing Swedish atomic bomb. But things were about to change quickly.

In 1954, Sweden became the fourth country in the world to build its own computer, after Germany, the United Kingdom, and the USA. The Swedish computer called Bark (Binary Arithmetic Relay Calculator), was the world's fastest computer during one period, capable of performing an addition in 56 microseconds and a multiplication in 350 microseconds.

With Bark, the need for control calculations of the type that Elsa-Karin Boestad-Nilsson had previously worked with disappeared. However, the computer lacked an operating system and therefore needed a program for the machine to compute. Boestad-Nilsson was determined to be involved in this work from the beginning. Therefore, she developed a program to calculate dispersion in rocket trajectories, despite her having no knowledge of computers or calculators prior to arriving at the FOA.

Thus, she became the first academic in Sweden to program computers, leading the way for women that now became programmers. And yes, it was indeed women who programmed, while male colleagues laughed at the idea of having

to drudge with zeros and ones. Elsa-Karin Boestad-Nilsson took programming seriously and in 1957 became the head of the computation section at the FOA. The unit was tasked with performing calculations for all other units. In 1974, she became the head of the department of mathematics and data processing, and some years later she was appointed as senior engineer.

Not just an industry problem

Today, the digital transformation is not led by women. New digital products and solutions are primarily developed by men, and it is men that lead the most radical innovations. Women tend to be more involved in projects based on existing technology, while the solutions that will truly revolutionize the world are developed by men.

It is both sad and concerning that women no longer feel at home in the industry they themselves played a critical role in creating. When women do not pursue education in programming, the talent-pool diminishes, and we lose out on important perspectives. If we continue down the current road, the gap risks widening even further, reinforcing the feeling among many women that digitalization is a male-dominated field where they do not belong.

Studies also show that the gender inequality in IT also affects other industries. This is especially true in the female dominated sectors of healthcare and education. In fact, many IT systems of today do not support the work conducted in female-dominated fields of work, resulting in extensive working environment problems, both physical, psychosocial, and cognitive. This is partly because systems are built by men but used by women. It also aligns with an overarching trend in female-dominated professions in the public sector, such as education or healthcare. In these professions, individuals have less control over their working conditions compared to other industries. Women in female-dominated professions in addition report meeting higher demands than men, while at the same time having less control over the conditions under which they work. This risks exacerbating the grave lack of female perspectives in digitalization processes.

Comprehensive digital transformations of the workplace is a very current issue, but I equally often encounter employees in female-dominated professions that do not share this view whatsoever. In some cases, digitalization is barely noticeable, and to the extent that it is, the digital support systems rather become stumbling blocks in their daily work and develop far too slowly. We cannot allow digitalization in these sectors to lag behind, but we can at the same time not allow it to become an invisible burden in the daily work of women.

Representation is important

Clearly, the uneven gender distribution in the IT industry has far-reaching consequences for conditions in sectors where most employees are women. In order to change this, the male dominance within the IT sector must be dealt with. More women have to participate in creating opportunities for other women and need to be involved in digitalization and innovation projects, taking on the role of being intrapreneurs, participating in driving change, and taking control of the digital systems. An industry that misses out on female experiences, skills, and perspectives is not sustainable.

As Sweden's Minister for IT, Anna-Karin Hatt (Centre Party) prioritized information technology in healthcare, digitalization of schools, and increasing girls' interest in technology as some of her most important issues. Leadership of this sort, at a high political level, is necessary to lay the foundation for a feminist digitalization in the future. Change on a societal level is needed to address the fact that digitalization processes are not taking into account the effects for employees in female-dominated professions. Studies have shown that it is not enough for individual managers in female-dominated sectors to try to alleviate problems such as female employees having higher absence and limited control over their work condition.

If change is not made at a societal level, we risk only mitigating the consequences, while the root problem remains. This is neither sufficient nor efficient. Digitalization is therefore not merely an IT issue; it is an important gender equality issue. If done right, digitalization can create a more humane working environment, especially in female-dominated sectors.

The future of digitalization must be feminist.