

# New Civil Engineer

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Software firm Basestone founder Alex Siljanovski on freeing engineers from admin to create.

Talking to software firm boss Alex Siljanovski it becomes immediately clear why the adage “frustration is the root of innovation” resonates with him so much.

It is at the heart of why he moved out of traditional engineering from his career with consultant Halcrow and made the leap into the apparently peripheral world of technology.

His firm, Basestone, germinated out of that frustration — a frustration that the craft of civil engineering so often becomes mired in paperwork and process. Paperwork that he believes should no longer hamper real engineering work.

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Simply, he says the burden of process in the industry means: “You have more and more senior engineers doing less and less engineering.”

But Siljanovski is at pains not to do engineers down. It is in part thanks to the great engineers he has worked with that he left to set up his firm.

His career could have worked out differently. Eager to get a job on completing his first degree in electrical engineering, he was interviewed simultaneously at Rolls Royce and Halcrow. With his keenness for aviation and fast cars, the former was a pull.

But Halcrow came in swiftly with an attractive offer and he was sold. “It turned out to be a blessing,” he says, delighted that he experienced working with “world class engineers at the firm”.

A few years in, however, and those frustrations began to take hold. His career began to become more managerial. “I was going up the ranks,” he says. “And I sensed that frustration. You become involved in these really impressive projects and you’d be going to site and, even though you’re the principal engineer for that particular site, you’d end up doing so much admin and management when in fact you were thinking ‘I just want to build this thing’.”

A pattern started to emerge. “I remember I used to do this all the time,” he exclaims. “I’d find the drawings, and I’d print them out and go to site. I’d be doing a particular kind of inspection — it could be progress, it could have been defects, surveying. I’d got my drawing, then I’d be making notes on my drawing and taking photographs of things I’d seen that were going wrong. Then I’d remember somehow that it was connected to reports that were written by either us or someone else. I’d get all this information.

“Then my next task was go back to the office and repeat all of that again because it had to be neat. So I’d reprint all my drawings, meticulously marking them up, typing up the comments. Perhaps for the third time now — it could be in Excel or it might be in Word or in an email. And then that would be put in to some document management system.

“When in fact at that point I’d be realising, the guys on site are making mistakes because of not having access to the right information in the right sort of time. And why am I doing the same thing? I’ve already done this and why am I having to do it again?”

“I suddenly realised, all our documentation, our drawings and everything was in digital space and then we’d take it out of digital into analogue space then we’d do stuff to it and spend time putting it back into digital space.”

“That analogue step was Basestone. I thought ‘is there a way to do this that’s better?’”

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Not that it was quite that simple.

Sensing his frustration, Halcrow offered him the chance to work in Malaysia. That helped, but Siljanovski was helped more when his employer allowed him to take a sabbatical.

He simultaneously applied for — and was successfully awarded — the Sir Robert Malpas Bursary from the Royal Academy of Engineering and an MSc in Technology Entrepreneurship at University College London — the former funding him to take up the latter.

That year — 2011 to 2012 — was pivotal. The frustration he felt within engineering had begun to turn into disillusionment and this was a chance to make a break away from all that.

The course exposed him to the perhaps more dazzling world of tech. “I wanted to explore, and I was learning about all these cool apps,” he says.

His experience in engineering began to feel like a weakness in the face of this exciting new subject. When it came to writing his dissertation he rebelled against doing anything on engineering.

But then something changed: “I had this realisation towards the end of the programme that actually my biggest strength was what I was considering was a weakness — that I was an engineer and I knew about construction,” he says.

The subject of his dissertation signalled the birth of Basestone.

Described broadly as a collaboration tool, it is a tablet and web-based app for architects and engineers that connects the site to the office — essentially making a lot of that analogue work, digital.

Rather than aiming to replace current document management systems it simply connects, or points, to where firms' hold their documents and enables notes, amends and alerts to be made digitally, instantly.

It is a subscription model, so the firm can evolve the product and ensure customers get the most up to date, improved version. And it is designed mobile-first in recognition of how important it is to enable engineers to remain in the field rather than needing to return to the office to complete work.

“We desperately try not to change the workflow that engineers go through, we just make the steps easier,” he says.

“For instance, if you take a senior field engineer,” he explains.

“We've linked to the back end system so you see a digital drawing on our system. So you are absolutely certain the drawings you are working from are the most up to date. You get an alert that says you are now no longer looking at the latest version. And it takes you to the right one.”

“We reduce cost because we really shorten the process of back and forth review that happens between the field and the office, and we cut out loads of redundant steps. No one needs to repeat their work.

“The really nice thing is engineers are paid to be engineers. They are very expensive admin. So let technology — let our technology — take the admin away and let engineers be what they want to be.”

Construction is one of the few industries that hasn't yet been truly disrupted by this latest wave of technology.

The aim is to keep it simple and if there is any doubt, the Basestone team carries out its training on site with engineers so it can ensure any sceptics are persuaded of its ease of use and so it benefits from immediate feedback — enabling it to modify the product according to user needs.

Siljanovski is passionate about changing the industry, and while it may be in small increments right

now, he wants to see more change, particularly in adopting technology to improve efficiency.

“Construction is one of the few remaining industries that hasn't yet been truly disrupted by this latest wave of technology.” Yet it has the potential to be one of the most adaptable.

“Engineering is about solving a problem,” he says. “The best engineering in the world is always creative. It's easy to forget that sometimes.

“Having a bit of disruption, a gentle rebellion, it can stir up potential solutions. Some things may fail, but occasionally you will get one thing that's really good and that can make a real difference.”

He accepts that pitiful profit margins and contractual constraints mean it can be hard to justify taking time to develop ideas but urges engineers not to let that stop them.

“You want to incrementally increase profit but then be brave enough to invest that back into innovation.”

Contracts that encourage collaboration rather than pit small-margin firms into adversarial battles could also be key, he says, ones that “incentivise, rather than punish” in the high risk industry that is construction would be game changing.

### **Path to Basestone**

2004 Starts professional career at Halcrow as electrical engineer.

Moves to post of communications engineer before a brief stint in Australia as a telecommunications engineer for Parsons Brinckerhoff.

2011 Takes senior position as communications systems manager with Halcrow in Malaysia.

Awarded the Sir Robert Malpas Bursary from the Royal Academy of Engineering, leading him to complete a MSc in Technology Entrepreneurship at University College London, where he is currently a guest lecturer.

2012 Siljanovski sets up Basestone.

- Siljanovski is an ICE member and a Fellow at the RSA and a Queen Elizabeth Prize Ambassador for Engineering