

Complex matters made simple



ARTICLE

_CASPAR ANDRI LARGIADÈR
Founder, FieldWalk

Published in
SMART insights 2020 magazine

Caspar Andri Largiadèr, founder of FieldWalk, talks about how, by chance, he discovered a gap in the market, which led him to revolutionise the construction sector. He created an augmented-reality-driven app to navigate easily around large-scale construction sites. And the more complex a site, the bigger the app's benefits – sometimes it even helps to save millions of Swiss francs.

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"Our focus is on user-friendliness. In order to be efficient, the tool needs to be easy to use for the target group."

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– CASPAR ANDRI LARGIADÈR,
FOUNDER FIELDWALK

GroupDraw is a digital platform established in 2013 to facilitate ship building. This collaboration tool simplifies communications between the many companies involved in building cargo vessels and cruise ships. As its effect on increasing efficiency at large shipyards became more apparent, numerous contractors demanded a similar tool to construct buildings. So FieldWalk was created – an easy-to-use app that centralises pending

tasks, construction defects and all things quality management. Why make things more complicated, when you can make them simpler?

The power of large-scale building sites

As thrilling as large-scale building sites may seem, these are complex undertakings with a large number of players involved – and they need to be well-co-ordinated to get things done on schedule.



_DIGITAL CONSTRUCTION: THE TOOL CAN HELP BUILDING SITE STAFF COMPLETE VISITS UP TO 50% FASTER.



_UNDERGROUND TUNNEL: BUSINESS AS USUAL AT THE HOSPITAL DESPITE THE LARGE CONSTRUCTION SITE.



_THANKS TO AUGMENTED REALITY TECHNOLOGY, THREE-DIMENSIONAL MODELS CAN BE VISUALISED DIRECTLY ON THE CONSTRUCTION SITE.

It is the responsibility of construction managers, owners' representatives and the various supervisors in specialist areas. They instruct service providers, workmen and suppliers; and supervise material supply, completion and reporting of their tasks. In short: these supervisors make sure all work is executed to plan.

The starting point is highly complex and deadlines are tight. The specialists depend on each other for timely completion of tasks. Take building a house; it includes all kinds of installations including electricity, heating, ventilation, air conditioning, sanitation, water pipes, elevators and ICT services. Once these systems are interconnected, they all work impeccably. This, in industry jargon, is called an "intelligent house". The key to accomplish it is consistent quality control: defects need to be identified, recorded, processed and controlled as soon as possible.

Until now, such defects were recorded by taking photos and handwritten notes during walkabouts on site. Back at the office, it was all transferred to Excel

sheets with thousands of columns, while photos were uploaded on a server. The resulting tasks would then be distributed among the stakeholders, often in chaotic ways – photos were lost on the server and descriptions lacked visual context. It was a lengthy and exhausting process, with huge potential for error.

Thanks to FieldWalk, this now takes just a few minutes. Supervisors photograph, take notes or record voice memos, and each task can be assigned accurately to the particular supplier in charge. The pending task is automatically added to the layout plan or the 3D model, and sent to all involved parties immediately.

Seamless integration of all suppliers

FieldWalk is a specialised app for construction sites, to facilitate collaboration and digitally manage defects and pending tasks for both internal players and external suppliers – plumbers, electricians and machine experts, they all receive their pending tasks via the app. And so no-one drowns in the sea of data, each supplier sees only the tasks specific to them. However,



_LARGE CONSTRUCTION SITES ARE HIGHLY COMPLEX AND FULL OF NOOKS AND CRANNIES.



_A SITE MAP SHOWING THE USER'S LOCATION IN REAL TIME AIDS NAVIGATION.



_A QUICK SNAPSHOT, A BRIEF DESCRIPTION AND THE DEFECT AND ITS LOCATION ARE SAFELY LOGGED.



_THANKS TO A GPS TRACKER, THE TOOL ALWAYS KNOWS WHERE THE USER IS.

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not all suppliers are keen to add a work-related app to their private mobile phone. This is avoided as FieldWalk sends out a link, similar to Dropbox, where all defects are displayed, neatly organised by sector. They can work with the tool immediately, without even having to log in.

“Our goal is to seamlessly connect all involved parties on a construction site. It is all about fast and simple exchange of information, from conception to completion of a building,” says Largiadèr. The power of visual imagination enhances the user experience, as a PDF plan is linked with a 3D model and allows cross-linked planning called Building Information Modelling (BIM). And thanks to the newly developed augmented reality viewer, 3D models can be displayed in real-time at the construction site. “It was such a highlight to demonstrate the AR engine on site to our clients, so they could experience its magic. And it all worked perfectly,” adds Largiadèr.

The app enables the current state of construction to be aligned with its 3D model and gives access to

accurate information regarding construction units. And by doing so, it reduces errors and their resulting defects. Now there is a new feature in development, called Indoor Navigation. It tracks the location of the user in real-time and automatically displays defects and pending tasks on the 3D model.

The brilliance of simplicity

FieldWalk is user-orientated; one can register errors and defects for single rooms, floors or entire buildings – whatever is required. That way, a construction supervisor can precisely plan his walkabout and save precious time. The tool also works in offline mode, which is automatically switched on if there is bad reception.

“Our focus is on user-friendliness. In order to be efficient, the tool needs to be easy to use for the target group. The construction industry has huge potential in terms of digitalisation. But since the work takes place outside and under difficult conditions, construction workers rarely have time to learn how to use digital tools. And you also need to consider the mix of generations – everyone must be able to use the tool

_PAUL HITZ, SWISS CERTIFIED PLUMBING PLANNER
& CONSTRUCTION MANAGER, AMSTEIN + WALTHERT AG

“With FieldWalk we are two to three times faster at managing defects and pending tasks of building services engineering.”



intuitively, and want to use it. The app has to be self-explanatory, quick and easy to use,” says Largiadèr.

Room to grow

Analysis has proved that FieldWalk can save up to 50 per cent of time – to record, compose and send out a defect report usually takes 20 minutes; with FieldWalk it takes barely ten minutes. If we spin that further and calculate for a large-scale construction site, millions of Swiss francs can be saved – not to mention the reduction in stress levels. This is confirmed by Paul Hitz, manager at the construction site of the Cantonal Hospital St. Gallen: “We are two to three times faster at managing defects and pending tasks of building services engineering.”

Adding value to facilities management too

FieldWalk replaces pen and paper, and allows the user to digitally capture the state of construction, while sharing it with all the involved parties. Every pending task is highlighted until it has been completed by the person responsible. The user can easily grasp the current state by viewing its related reports and spreadsheet, which adds transparency and has economic benefits.

According to a study by ETH and Swiss Builder’s Association, defects in structural engineering in the Swiss housing market amounted to 1.6 billion Swiss francs per year, which is eight per cent of the total construction costs. And this is primarily to be blamed on poor or non-existing communication between the various parties.

There is also huge potential in the related field of facilities management – after all, a building is constructed only once but needs maintenance throughout its life span. This offers plenty of opportunities for such an innovative tool, in addition to its Indoor Navigation and BIM models. The system can tell in a heartbeat which socket in which of the 250 hospital rooms was photographed by the janitor.

The secret to success?

There is great value in challenging the status quo and finding new solutions, to make our everyday work lives simpler and more efficient. "Vision and strategy alone are not enough, you need to execute them in a timely and costly manner. Ergon accomplished just that. They work extremely quickly, efficiently and in such an interdisciplinary way, like I have never experienced before," says Largiadèr. />

_CODE TO SUCCESS

by Caspar Andri Largiadèr

_TRUST FROM THE START

We were able to get clients on board at a very early stage, which allowed us to tailor the tool to our target group. It fills me with pride that respected firms such as Amstein + Walthert trusted in us from the start.

_BUSINESS VALUE IS KEY

If you develop a new product, you should never lose sight of its core benefits and values – they are crucial to its success. Your solution should be developed in close co-operation with your client. This helps you to develop it step by step in a much more focused way.

_CREATIVE, EFFICIENT, INTERDISCIPLINARY

I have high expectations of IT service providers. They need to grasp the assignment quickly, contribute their own ideas, demonstrate expertise and share their thoughts passionately and constructively. Only then can you achieve the ideal outcome and build a highly-efficient, innovative tool. And that is what Ergon has done.

Sustainable performance in the construction industry

With 1,100 employees, the Amstein + Walthert Group is one of Switzerland's leading companies for building services engineering, offering modern approaches to develop and maintain buildings, facilities and infrastructures. Its thirst for innovation is deeply engrained in the company culture. And discussions about digitalisation, energy and sustainability are part of its everyday business. Construction supervisor, Paul Hitz, explains to us why quality control is beyond essential.

As a construction supervisor, you are crucial to the renovation and extension of the hospital. What are your responsibilities?

I make sure that all work meets the building owner's demands; and that all deadlines, budgets and quality standards are met. I manage the many contractors on the site, on behalf of the building contractor. I handle defects and help solve problems.

That sounds rather complex. What if an error arises?

Errors happen everywhere. The point is to detect, process and resolve them as quickly as possible. Quality control is key.

Amstein + Walthert AG stands for sustainability. How does this translate in practice?

We aim to work more efficiently, by constantly applying the latest industry developments. To optimise energy consumption, we carefully monitor the lifecycle of property and make sure that all specifications are not just met but executed in a sustainable manner.

Your hunger for progress is quite infectious. Was it boosted by FieldWalk?

FieldWalk was a breakthrough. I tried working with various apps but they were all too inefficient or too pricey, making the processing and management of defects only more complicated. The founder of FieldWalk approached us and asked us to co-create the tool, together with other construction companies. Before we knew it, a prototype had been developed and immediately tested in the field. I remember being impressed by how intuitive the app was and after working with it for ten or 15 minutes, I realised what a time saver it is.

_PROJECT "COME TOGETHER" AT THE CANTONAL HOSPITAL, ST. GALLEN

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500

_WORKERS*

145 500

_M² TOTAL FLOOR AREA

_THE CONSTRUCTION WORKS TO EXTEND BOTH THE CANTONAL HOSPITAL ST. GALLEN, AND THE CHILDREN'S HOSPITAL OF EASTERN SWITZERLAND STARTED IN 2016. "COME TOGETHER" WILL INCLUDE PATIENTS OF ALL GENERATIONS AND IS DUE TO FINISH IN 2027. ITS BIGGEST CHALLENGE IS TO CONTINUE THE WORKS AMIDST THE ONGOING BUSINESS OF A HOSPITAL. THANKS TO ITS MODERN-DAY CONSTRUCTION PROCESS AND THE USE OF CUTTING-EDGE TECHNOLOGY, THE CONSTRUCTION WORK IS MORE EFFECTIVE, MORE COST-EFFICIENT AND OF HIGHER QUALITY THAN EVER BEFORE.

20

_FLOORS

401 700

_M³ BUILDING VOLUME

11

_YEARS PROJECT LENGTH

2027

_PROJECT COMPLETION

*From master builders, civil engineers, safety and fire safety officers, plasterers, decorators, joiners and building technicians to IT managers, etc.



_WORKING IN THE HOSPITAL: THE CANTONAL HOSPITAL IS CURRENTLY ONE LARGE CONSTRUCTION SITE. THE "ONCE-IN-A-GENERATION" PROJECT SHOULD BE COMPLETED IN 2027.





“Take a construction site with 10,000 defects. Without FieldWalk I would need ten to 15 minutes to register and manage every defect; with it, I am two or three times faster.”

_PAUL HITZ, FEDERALLY CERTIFIED BUILDING SERVICES PLANNER SPECIALISED IN SANITARY FACILITIES; SITE MANAGER, FROM THE FIRM AMSTEIN + WALTHERT.

What is the most valuable benefit of the app?

Optimising our resources. The app is very hands-on, allowing us all to work more efficiently, save valuable time and enhance quality standards. It is the most user-friendly tool I know, thanks to its uncluttered design. And it is forward-thinking, too as we see more progress in our industry, moving towards BIM and 3D models. We are approaching a future, where pen and paper are replaced by digital models.

Why is user-friendliness so important?

It should be as easy to use as a smartphone, with its data being accessible in real time from a variety of devices. You need a central hub that gathers and constantly updates all the vital information, so it is accessible to all parties. FieldWalk has it all.

One of its latest features is indoor navigation. How does this help you?

The total floor area of this construction site is over 140,000m², with 10,000 rooms across 20 floors. Now imagine you have a defect in room 425 on the second floor; to find this room quickly you need a clearly designed plan, that shows your current location, too. With indoor navigation you know where you are at any given moment and can update that defect immediately. For a more holistic approach, it also offers a feature to plan your whole inspection walkabout.

Can you expand on this for us?

Take a construction site with 10,000 defects. Without FieldWalk I would need ten to 15 minutes to register and manage every defect; with it, I am two or three times faster. This means less work and less cost. Across all projects, there are hundreds of thousands of defects that Amstein + Walthert has to register and manage. So the ROI for this tool is great and at the same time it raises our quality standards.

Sounds as though you would like to improve the whole industry?

Certainly! I think everyone should be using it. If a tool is easily adaptable, and defects are constantly updated and accessible, that is extremely valuable to all stakeholders. So it is obvious they would want to benefit from it – wouldn't you?

"This is great. It is easy to use and I see great benefit," was the feedback from one of our contractors, with whom we collaborated via the tool. Once a defect was resolved, it was automatically updated on the app. It gives contractors more autonomy and saves them valuable time. />

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