

## Lighting up learning and employment for Tech students

Transforming thinking and practice in the sector



**"How do you get school students into a tech career, digitally trained with the essential skills the industry requires? How can they be inspired to fast track into that career, with skills and income equal to seasoned professionals?"**

**"I'm adamant future IT leaders are lying dormant across the country in Kiwi kids and that many will miss the career path without help, mentoring and inspiration.**

**"As the go to tech experts for the Manaiakalani digital learning programme, we had disrupted the provision of traditional IT support for schools, with an ICT framework and tools that combined infrastructure and ICT support.**

**"Yet few students were choosing a tech career despite their digital immersion. They didn't know what they wanted to study or what the future could look like. Digitech courses were uninspiring and low decile schools lacked teachers with skills in these subjects."**

**- Andrew Gurr, Fusion Networks MD**

## A transformative EduTech model

"Industry demands contemporary IT capabilities from employees yet does little to support these competencies. School IT courses are not engaging students in low decile schools, and teachers often have poor skills to train students in tech subjects."

"I wanted to challenge the way employers look at employee needs, and make on-going commitment to ensure the tech industry engages and helps build a new generation of tech leaders."

"Traditional trade apprenticeships don't require academic training, but for the IT sector a robust EduTech framework is critical."

– Andrew Gurr



## Challenging the way the IT sector builds its workforce

Andrew Gurr discovered students fresh out of tertiary training, with some practical experience, were almost as capable as seasoned engineers. The normal expectation was young people needed 3 years incubation before they would be productive. During that time finding a job is hard due to that same lack of experience.

Gurr says the EduTech model has proved transformative. "It is a practical response to a community need for students from less privileged communities who simply don't have the same level of access to education.

"The Intern programme uniquely combines academic learning with on-the-job mentoring, creating skilled IT professionals in a 1/3 the time the industry expects.

"Our first Interns are employed, performing as competently as experienced engineers, with earnings that reflect their value. Seven years on, we have more than 60 Manaiaikalani schools in the outreach programme with the Intern Pathway in place across every Fusion-supported secondary school."

Today around 15% of Fusion's staff are Interns, resolving Fusion's dilemma of hiring a new staff member every three weeks to fuel growth.

## The IT Academy

The IT Academy has been co-created with education professionals, with a curriculum built around NCEA papers and delivered in partnership with secondary schools. The programme is being rolled out to 7 new colleges, and more than 60 students.

The approach to programme development, student assessment, and meshing school study to align and deliver NZEA is based on understanding school, curriculum and workplace digital learning needs. Mint Education NZ has guided course development: Fusion's HR partner, Engage Partners has developed mentoring and student care frameworks.

Schools in the IT Academy manage their students and ensure they are working through the theory component of Fusion NZQA papers. Schools can deliver tech courses in-house which they don't normally have teaching skills for, while leveraging on-site resources schools are already paying for from Fusion. Fusion rounds off structured theoretical learning with practical teaching at set times each week via its existing on-site engineering teams.

## Fusion Nano Courses

New Nano courses are a counter to existing NZQA tech papers. Robotics, Artificial Intelligence, 3D printing, Game Development, Web Development and Drones have all been investigated as contemporary course subjects and interesting technologies to engage young minds in modern learning.

They meet the focus on practical application of learning, yet follow new NZQA digital curriculum frameworks for scaffolded learning. Course content covers applied learning and problem solving around programming and control of modern technologies that include robots, drones, 3D printers, web applications.

Fusion intends to scaffold the logical programming activities all the way through to artificial intelligence (AI).

Approved Assessment will ensure students have formal Certificates of Achievement when completing the Fusion Nano courses.



*Tamaki College junior students explore robotics*

# Tuakana/teina: lifelong learning & teaching

## Transformative education model

"The Intern Pathway makes a real difference for DigiTech students because they see IT as a feasible vocational option. The juniors are watching the success of their senior peers."

That's according to Hinerau Anderson, Head of Technology at Tamaki College and a Manaiakalani Community of Learning Teacher.

"Students like the authentic learning context where they can explore, grow and resonate with other students on the programme – over and above the value of their NCEA credits."

"As a Fusion Intern Leeroy [Pohatu] gained such elevated self belief and he stepped up academically – he realised he could really go for it, from student to Intern, and now he's at University."

Hinerau agrees that many teachers like her didn't expect to teach DigiTech; she has a Commerce degree in Strategic Management and wasn't trained in coding. "I am typical with a gap in proficiencies teaching computer science. The tech world is changing exponentially and to have the support that Fusion provides for exciting DigiTech programmes with a vocational pathway for our students, is brilliant."



*Tamaki College digitech student Leeroy Pohatu*



*Tamaki College digitech students Lisate Pau'uvale (left) and Gustavo Pohatu (right)*

### A robust EduTech framework

#### Leeroy Pohatu

Leeroy Pohatu has become so engaged in his tech career, he's decided to go to University after a year working as an intern for Fusion. He says the only downside "was to resign my Internship at Fusion Networks, but MD Andrew Gurr was really encouraging and said I'm always welcome back into the Fusion team."

#### Gustavo Pohatu

Gustavo Pohatu is now a Year 13 student at Tamaki College where he's a prefect and an IT Intern.

"My brother Leeroy has been through the Fusion Intern Pathway before me. I was always interested in IT from the beginning, and in year 11 when I could choose my subject options, I took digitech."

"People came to talk to us at the College about their work, and I thought that's what I want to do when I get older. I like the work we are doing and I think it's a good job opportunity after College. And it is money dreams come true."

"It's great Fusion supports students, giving us experience. Last year I began at Tech to get my academic papers. You're learning about IT and getting paid when you are working. We're very fortunate to have opportunities like this."

"My Mum is very supportive of us both. I'd like to go to University like Leeroy."

#### Lisate Pau'uvale

Tamaki College Rata House Captain has been chosen as a Fusion Intern. He says: "I started taking IT in Year 12. I thought 'man this is the future, this is it!'"

"I don't have a computer at home but with the Manaiakalani digital education programme we're given a computer for our own use."

"Last year we went to Tech and I started learning about coding behind websites. It will help me later on. This has made me think I can go to Uni, learn all about coding, become a software engineer. And I'm earning at the same time. It's a bonus, I didn't expect that to happen. One day I'd like my own company. I love creating stuff."

#### Tau Haffeiki

I'm in year 13 and when I finish College I want to study software engineering. This programme has given me an idea and the knowledge of having a certain job.

"I think they see leadership qualities in me. I have a First Foundation Scholarship which leads to University support. I am being mentored between now and going on to a Uni placement."





## Fast tracking IT competencies

Bradain Ramsay is an IT Field Engineer for Fusion Networks in Greymouth.

Three years ago he was working part time in a local video store and was not sure about his future. He attended John Paul II High School in Greymouth.

Bradain says he took computing at school but the digital course "was pretty boring, teachers had trouble teaching programming and we were just learning to use Excel and Microsoft Word."

He says he'd always been around computers and "wasn't bad at IT, so thought it could be a good job. "I took CISCO IT ESSENTIALS at Greymouth Polytechnic and that was really good."

As Bradain was about to complete his Polytechnic studies he applied for a Fusion internship. After a Fusion Skills Test designed for an Internship, he had a lucky break with a position available at Fusion Networks, and was fast forwarded into the Fusion team. He was employed in Greymouth and today works with IT Team Leader Jimmy Brown. He is 19 and his competency as a senior professional is impressive.

Bradain says a typical day is spending time at the Manaiaakalani Schools that Fusion looks after on the Coast: Grey High, Grey Main, St Patricks, Blaketown, as well as the Runanga primary school.

"The job is a lot more interesting than working at the video store, time goes fast... I'd like to get some more industry certifications; learn more technically complicated networking, and get into security."

In his spare time he likes to surf the beaches in Greymouth, and to read.

"Bradain is 19 yet he is performing well above his age. He's doing a great job, and is working well with the teachers in the schools." - Jimmy Brown, IT Team Leader



## Co-created, co-delivered learning

The Fusion team has worked closely with partners, each experts in their own fields.

**Work-based learning:** Leverage industry expertise.

**Evidence-based assessments.**

**School:** Leverage teacher expertise and add value with clever course design.

**PTE:** Leverage technical tutor experience. Add value in targeted short courses with sector-specific skills.

Andrew Gurr's vision to shift the dial in the tech sector is gaining recognition because it is delivering results – and the model can be implemented in other sectors. In a current NZ Transport Agency Report, research assesses skills gaps and training needs likely in 2035 for New Zealand, as a result of change from implementation of intelligent transport systems (ITS) in land transport. Fusion provides evidence of how the education system can be shaped for the future.

*"When Tamaki College challenged Fusion to find a way to help students build a career in technology, Fusion looked to change traditional academic learning with hands-on and practical focused workplace experience. The mix was a key factor for a company like Fusion, which had discovered that graduates that hit the workforce with hands-on practical experience are confident, and high performers in the workplace."*

Reference Page 71 (7.7) Report RR 63. Independent research undertaken on the NZ Transport Agency's behalf (by Business and Economic Research Limited)



Raj Sharan, Fusion Systems Engineer in his dual role of managing Tamaki College's IT needs as a full digital learning secondary school, and as the mentor for Tamaki College DigiTech students and the Fusion Interns.



Tamaki College Social Science students