



Training Showcase: Hao2

How diversity and engagement can be the basis of a successful business

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1 Introduction

Nikki Herbertson is a successful businesswoman. In less than ten years her technology company has grown from start-up, to targetting substantial contracts around the world – from the UK Government to the European Union and China. The company regularly wins awards for innovation. Yet her company is not just focused on the bottom line. It is very much a social company that sets out both to address the needs of society and to involve a group of people who are often excluded from the world of work.

Hao2, which means ‘good’ in Chinese, is a ‘social company’ that develops and sells 3D virtual environments. Although these products are used in a range of settings, from businesses to education, the company has a specific aim – to increase opportunities for those with autism and other complex needs. Indeed 80% of Hao2’s workforce have disabilities such as autistic spectrum disorders.

“People on the autistic spectrum, while diverse, often have such strengths as amazing creativity, incredible ability to acquire new skills and information very quickly, and fantastic attention to detail.” Nikki explains, in a [UK Trade and Export Case Study](#). “Hao2 is all about using technology and business-model innovation to tap into those skills. It makes business sense, and it helps to tackle a difficult social problem.”

But as well as the RRI focus on outcomes that address the needs of society, the RRI principles of diversity, inclusion, and engagement, as well as responsiveness and adaptive change, form the very backbone of the company. Nikki developed the idea for a new way of teaching life skills to people with autism when she noticed how they became much more sociable in online environments such as the virtual world game Minecraft. She found that various studies backed up this observation that people with autism are more comfortable socialising online, possibly because the communication structures online are more familiar, you can choose the topics of conversation more easily and respond in your own time. Based upon that observation, the company investigated the potential of 3D virtual world applications to enable staff to communicate with each other. And it was such a success that since 2010 the

company has entirely focused on promoting 3D virtual world products and services to help organisations improve services, especially for people with disabilities.

So what does Nikki say to people who say that diversity and engagement is a luxury they cannot afford?

“There is always a reason not to do things and cost is always the first reason to resist change. The thing you have to look at is not just the short-term values but also the long-term value over time. But I think the more interesting point is the knowledge that you can gain. If you can communicate and understand the needs of your customers or your users or whoever it is you are trying to engage with better, then ultimately you are going to have a better outcome at the end of it”.

This showcase uses video material of Hao2’s digital environments, learner testimonials, and an interview with Hao2 CEO Nikki Herbertson. It describes the way in which Hao2 has implemented Responsible Research and Innovation elements and how the company has benefitted from doing this.

2 Hao2 and Responsible Research and Innovation



Nikki Herbertson in conversation with Prof. Steve Miller www.youtube.com/watch?v=ihu-JOLGuQ4

“I set up Hao2 as a way of getting back to work after being out of work for 3 years due to work and health related issues. I had the confidence to set up my own business because my family had their own business which I had experience of working in. Setting up my own business enabled me to work at the level I was capable of but in a flexible way to accommodate my personal health and family needs. The work I did was education and IT consultancy (e.g. bid writing and project management) and City and Guilds ILM accredited leadership and management training and assessing/verification. After the first year I started recruiting and employing other people (particularly women) like myself who faced barriers to returning to full-time work and were happy to work predominantly remotely using technology. In 2010, a family member was diagnosed with autism and I focused exclusively on that from then on.

“The technologies we have developed as our products and services were first researched, developed and tested to support our own business / workforce in working together – and we still use them today as our preferred way of working because its so cheap, convenient, and flexible as well as meeting the needs of our diverse workforce.

We are truly digital by default, driven by a perfect storm of economic and social need. The technologies we use (and sell to others) enable us to be:

- *Agile*
- *Adaptable*
- *Environmentally responsible*
- *Socially responsible*
- *Innovative*
- *Efficient*

It was quite clear from the outset that the only people that could really deliver the insight that we needed from a research and development point of view would be people with autism. And it was absolutely critical that they were not just a focus group, but actually that they were the citizen researchers alongside me looking at the options and then designing the solutions in a sustainable way.”

Hao2 Founder and CEO Nikki Herbertson.

2.1 Hao2 – what the company does

How do you influence decisions if they are made according to rules that are clear to everyone except you? How do you make your voice heard if you have grown up with an unpredictable barrage of disapproval, exclusion, and ridicule whenever you try to express yourself? Especially if you’ve therefore withdrawn from the world, maybe to the point of not speaking at all? Many people with autism face this problem. It is often compounded by economic disenfranchisement. According to a study by the National Autistic Society, just 15% of autistic adults have a full-time job and a third have no job or benefits. The two problems can become a vicious circle, with lack of confidence making it harder to find work and unemployment further undermining confidence. autus.org.uk/node/25

Hao2 is a successful business that is trying to break this cycle by developing and creating 3D virtual learning platforms, which are used in situations from businesses to education and where people with autism and complex social needs can receive training in personal and

professional development, job coaching, independent living skills, and vocational training. Those 3D virtual worlds are different from, for example, online chat facilities because they allow participants to explore different environments: from a grocery shop or a conference room to imaginative outer space platforms. And these environments are largely created by the users, using their own imagination.

Participants can create their own avatar and design a personal 'home' and virtual portfolio of their work and their progress. They can practise engaging in real life situations, such as role-plays in shops, clinics, offices, and public transport, within the safety of an online learning environment. One of the learners described his experience with the virtual training programme:

“The perfectly safe and controllable scenarios that can be designed into these 3D programmes can help people learn about what you expect in normal day life in a safe and controlled atmosphere.” *Nathen Batten, Volunteer Autus Ambassador*



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The company has found that for people with autism, ICT reduces barriers to engagement and participation. With the help of specialised online learning supervisors and assessors, young people with autism, who often lack confidence, communication, and employability skills can use the environments to find the right information, as well as advice and guidance, and receive training to prepare for transitions, improve their self-confidence, assertiveness, communication and employability/entrepreneurship skills. Working in small groups the teams communicate via Voice over Internet Protocol (VoIP) voice and text messaging, which is helpful for those who have elected to remain 'elected mute'. Using 3D representations of community and working environments, they can earn accredited qualifications, learn how to create their own virtual environments and eventually move into the world of work, voluntary work, or further education.

As well as solving an important social problem, helping engage a hard to reach social group, Hao2 also builds diversity into their structure. 80% of Hao2's workforce has disabilities such as autistic spectrum disorders and they use, and help develop, the 3D environments at the heart of the business.

2.2 A gender dimension

What is clear from the opening quotation from Nikki is that the way Hao2 was established was so that **she** and – particularly – women like her who faced 'difficulties returning to work' were able to work in ways that suited their individual requirements and at a level appropriate to their skills.

She also explains how the software that forms the backbone of her company was first researched, developed and tested to support her own business/workforce in working together.

Hao2 shows how building flexibility into the business-model for diversity and inclusion reasons has also enabled her to draw on the best possible talent, build the best possible team and create the best possible business.

2.3 Wider Stakeholder Engagement

A key success factor in Hao2's strategy lays in its capacity to work in partnership with other public and private stakeholders. For instance, the company has recently collaborated with the Job Centre Plus of Swindon with funding from the Department of Work and Pensions for the project 'Journey to Employment', providing employability skills to local young people with autism. In the context of the 'Connect Up' pilot project, delivered in partnership with social enterprises 'Pure Innovations' and 'Balance Enabling Independence', a virtual space was set up to enable peer to peer mentoring and support from experienced workers with knowledge of autism and young autistic jobseekers on a range of specific topics. This has gone on to become a weekly peer led jobclub linking jobseekers with autism and disabilities to forward thinking employers seeking hidden talent and innovative ways of working that can give them a competitive edge.

2.4 Success criteria

Hao2 owes its success for a large part to the way it engages with its stakeholders. Being a social firm striving to make a meaningful societal impact, it is not so straightforward how to measure its success. The company uses these parameters for success:

- The number of partners, organisations, and customers they work with and the number of staff it trains about what they do, and why and how to use the virtual world.
- The number of new work related opportunities for people with autism that the company creates directly and indirectly through its partners and customers, and the number of these that are taken up by people with autism and complex needs, the impact of these on people's confidence and skills, and the number of people with autism.
- The number of people with autism who gain and sustain employment or other positive life outcomes (such as independent living, new friendships/ relationships, are healthier/safer, feel they have a voice that is heard/ respected).
- The number of tweets, case studies, blogs, LinkedIn profiles, and other offline and online activities that their team and beneficiaries participate in.

From the point of view of promoting social inclusion and employment of disadvantaged groups through education and training, Hao2 has been very successful in keeping people interested and motivated with engaging 3D virtual learning environments, scenario based learning, and personalised approaches. The following benefits were documented:

- 100% completion rates.
- 40% of participants on 3DNovations trainings moving into employment / self-employment and 20% into volunteering after completion of the course.
- Remarkable improvements in participants' technical, communication and social skills (the following outcome indicators are monitored: confidence in meeting others; Joining in conversations; listening to others' interests; taking turns in conversations; starting a conversation; IT skills; openness to new ideas; patience with others; general social skills; friendships with peers).

Alumni from past projects now work in roles as diverse as software tester for a Software-as-a-Service (SaaS) company, local council finance officer, technical support for a college and radio presenter.

2.5 Conclusion: What this showcase raises for RRI

This case study shows that it is possible for a company to be responsible and successful at the same time. It shows how embracing gender and disability issues as an integral part of business activity leads to opportunities. Hao2 has embedded engagement in every step of their processes, and has encouraged feedback, and listened to this. The RRI principles of openness, diversity, and inclusion have not only made the company responsive and able to adapt to changing needs, but were main contributor to Hao2's success and growth as a business.

3 Key needs for trainers

3.1 Hao2 from an RRI perspective

Hao2 shows how RRI process dimensions can be embraced and how incorporating these dimensions facilitates the company's success.

Diversity and inclusion

From the outset, Hao2 has included people with autism in the co-design of its products. Hao2 CEO Nikki Herbertson emphasises: "It would not be possible or effective for us to do this, without it being a user-led solution. That is a frame I created. I felt that was absolutely central. I would not feel confident about any solution if it was something that was designed in isolation based on initial observations."

Nikki also points out that technology and people's needs change quickly, so keeping in touch with your users is a good way of making sure your business can respond to that. She believes there are three important factors in doing this:

1. Embedding engagement in every step of the process.
2. Using a range of methods for people to be able to give feedback or contribute ideas – whether that is instant message chat, surveys, video interviews, face to face discussions, emails.
3. Listening to that feedback carefully and acting on feedback in an agile and iterative way.

Involving autistic people in the design process of their products and employing them at key positions in their company has always been an inherent part of Hao2's strategy and is built into the way the business operates: "We use a virtualised business-model, we enable people to work flexibly in line with business needs and to work from home or wherever they feel able to be productive as possible," Nikki explained in an interview in the [Daily Telegraph](#). "When we are setting objectives, we are focusing on the outcomes we need them to achieve and not necessarily how they achieve them. We're not going to force them [the workforce]

to come into an office. We make the requirement clear if we do need them in the office, but offer support if they need it.” They also make use of their own 3D technology if it makes staff more comfortable communicating during team meetings.

These principles of inclusion and participation are also built into Hao2’s products. For example, Hao2 gives individual learners considerable decision-making power over the content of their [courses](#). By evaluating their own strengths and weaknesses, students can create personal projects to address the weaknesses and build on the strengths. As well as each user having a virtual ‘island’ they can call ‘home’ and customise to suit their special interests, any user can contribute their personal touch to the space by creating things that enhance the environment. Examples include the taster islands Hao2 uses to introduce people to how the virtual world works, which still bears the names of participants who helped build them.

And these participatory features are bringing in business for Hao2 – one of Hao2’s clients is the JobcentrePlus in Swindon. They now own an exact digital replica of its premises with which people can interact, arguing that the appeal of Hao2’s virtual environment is that it can adapt infinitely to suit individual differences because the individual users build it. This user-led approach, autism-friendly by design because people with autism have so much of a say in every aspect of it, is making progress in helping people with autism become economically active and therefore more empowered in the wider world – and building a business that is spreading technology and practice around the world.

“I think the thing you have to look at is not just the short-term values but the long-term value over time. But I think the more interesting point is the knowledge that you can gain. If you can communicate and understand the needs of your customers or your users or whoever it is you are trying to engage with better, then ultimately you are going to have a better outcome at the end of it,” Nikki concludes.

Anticipation and reflection

In setting up the Hao2 platform, there was a clear understanding of how this would affect – positively – community of people on the autistic spectrum, enabling them to be involved in meetings, including searching for employment. Clear, too, were the motivations for setting up the platforms in the way that they now are.

Openness and transparency

Hao2 does operate with openness and transparency, although these process dimensions are not major features of this Showcase. Hao2 is operating as a business, so it has to ensure it is economically viable. Its rates for doing business are available on demand via the website.

Responsiveness and adaptive change

In response to the experiences of the company's employees and people who use their platforms, Hao2 responds to the needs of their particular community, updating their 'local offer' as required. Hao2 can adapt its platform, for example, to allow jobseekers to meet in a virtual job centre.

3.2 Using this showcase

This showcase has been developed to be used as a workshop scenario that would be delivered in the latter part of a training workshop. As it does not set out to explain key concepts in RRI, it is important that workshop participants have worked on other modules or activities that specifically do this, before moving on to this scenario.

We envisage that this would be one of a number of scenarios that the workshop participants could work through – perhaps working in parallel depending on the particular stakeholder group represented by or interests of participants. It could also form a useful case study to be drawn upon – and used as follow up material – in advocacy meetings.

3.3 Learning Outcomes from this showcase

For All Stakeholders, this showcase addresses the following learning outcomes:

1. Be able to explain the concept of RRI, and its component parts.
2. Be able to identify the opportunities offered by RRI and make the case to others why it is a useful approach to adopt.
3. Be able to identify the possible obstacles and conflicts that might make it difficult to implement RRI and know how to create arguments or plans to address them.

In terms of specific outcomes, the Hao2 case is part of the Industry stakeholder, addressing the particular needs of this group. Additional exercises are included to strengthen this, and to develop further RRI understanding amongst the other stakeholder groups.

3.4 Further use of this showcase

After any workshop use of this showcase and at an appropriate point in any online training course, Section 2 should be made available to the workshop participants and online trainees, along with the additional materials outlined in Section 5 and the appendices.

4 Workshop training exercise

This section now sets out how the Hao2 showcase might be used in a training workshop involving the industry stakeholder group that RRI Tools addresses. This involves an introductory plenary session, two group sessions, and a final plenary session. It may also be used with a more limited subset of stakeholder groups – business and industry alone, or with one or two partner stakeholders.

These come with suggested timings: depending on the knowledge levels of participants, this showcase would probably be used for a half-day event. Ideally there would be 10-20 participants and one or two trainers. As this case study is built around video material, trainers are advised to make sure required facilities to show videos are available at the training venue.

4.1 Plenary briefing

15 to 30 minutes

This plenary session of the workshop should be used to outline what the showcase consists of, what the module exercises are going to be and to briefly (re-)familiarise trainees with some of the main issues that RRI is trying to address based on the RRI Tools Policy Brief. The RRI interview with Nikki Herbertson could be shown – www.youtube.com/watch?v=jhu-JOLGuQ4.

Learning outcomes: This session starts to address the All Stakeholders “Be able to explain the concept of RRI, and (some of) its component parts” and “Be able to identify the opportunities offered by RRI ...” outcomes. The next sessions will help to address some of the individual Stakeholders’ and some of the other All Stakeholders learning outcomes.

4.2 Meeting 1: Group discussion

30 minutes – 4 per group

Watch the Hao2 introductory video ‘The Fox’ www.3dnovations.co.uk/about/Local-Offer, followed by potential exercises such as:

- Exercise 1: Identify which RRI elements Hao2 highlights.
- Exercise 2: Think of other examples of companies that embrace RRI or that showcase RRI elements.
- Exercise 3: Discuss how the principles of Hao2 could be applied to your company.
- Exercise 4: Discuss the issues involved in scaling up RRI practices from a small business to a larger enterprise.
- Exercise 5: discuss the differences between Corporate Social Responsibility (CSR) and RRI.

4.3 Meeting 2: Outline a ‘business case’

1 hour – 4 per group

Group exercise. Ask the participants to pick one of their companies as an example and ask them to discuss and outline a business case to be put that company to convince the board – and through them, the shareholders – of making developments in the company towards responsible innovation. Identify partners outside of the company that will help in these developments, and how and when to contact and involve them.

Learning outcomes: This session builds on the understanding of the Industry learning outcomes.

4.4 Plenary report back meeting

30 minutes to 1 hour - 5 minutes per group plus 10 minutes Q&A

In case of multiple groups, a rapporteur from each group will ‘pitch’ their business case to the plenary session and get feedback from the rest of the workshop.

4.5 Possible follow up exercises

At this stage, the T3 workshop may be asked to discuss how other stakeholders / agendas can benefit from this showcase, e.g.:

- How could this showcase be used to involve CSOs in a discussion with industry about their particular needs?

5 Resources

(1) Company website

www.hao2.eu

(2) Interviews with Nikki Herbertson

www.youtube.com/watch?v=jhu-JOLGuQ4

www.telegraph.co.uk/technology/news/10083879/Hao2-the-British-startup-built-by-an-autistic-workforce.html

[www.3dnovations.co.uk/about/BBC Make It Digital](http://www.3dnovations.co.uk/about/BBC_Make_It_Digital)

(3) Introduction video Hao2

www.3dnovations.co.uk/about/Local-Offer

www.3dcloudcampus.co.uk/dwp

(4) Testimonial

www.youtube.com/watch?v=6QCPBFt-LLw&feature=youtu.be

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