8D Research Design Impact²+

Why Serious Games for Healthcare Do/Do Not Reach the End User*

*Strike through what does not apply

Why do serious games and innovations for healthcare often end up on the shelf instead of with the end user?

This whitepaper highlights common obstacles in developing games and innovations for healthcare from the viewpoints of different stakeholders involved in healthcare innovation projects, including researchers, innovation managers, nurses, and software developers. Together, these perspectives provide an accessible series of insights and recommendations.

Whitepaper

July 2023

TABLE OF CONTENTS

INTRODUCTION

Spoiler alert: this whitepaper does not provide a ready-made solution either

Healthcare innovations that end up collecting dust on the shelf are a complex problem that, fortunately, is increasingly being scrutinized. This whitepaper aims to bring together diverse perspectives and distill lessons from a wide range of experts and experiences. For example, "involve the end user" is a common adage within the field of innovation. But what does that really mean? How has this principle been applied in various innovation projects, and what has it achieved? We know what the "perfect trajectory" looks like—at least on paper. But what can we learn from each other as we put theory into practice?

First off, because we value transparency...

This whitepaper was initiated and written by 8D Games, a social enterprise from the Netherlands specialized in creative innovation. Founder and CEO since 2014, Maarten Stevens, says: "I have experienced—more than once—a serious game undeniably having the potential to improve people's lives through healthcare, yet not making it past the prototype stage. As developers of these kinds of games, we feel compelled to address this issue. Not by pretending we have the one true solution, but by outlining in accessible language what is going well and what can be improved, with attention to the various roles that are important in a healthcare innovation project."

With the cooperation of:

Claire Diets works at Jeugdbescherming Overijssel. She initially worked as a youth protector with families and has been part of the Innovation & Marketing department since 2020. Since obtaining her Master's degree in Health Care & Social Work, she has been involved in research on the effectiveness and implementation of healthcare innovations. In her role at Jeugdbescherming Overijssel, she is closely involved in developing and implementing a VR experience to improve services for families in complex divorces.

Job van 't Veer is a lecturer in Digitale Innovatie in Zorg en Welzijn at NHL Stenden University of Applied Sciences and the author of the book "Ontwerpen voor zorg en welzijn" (Coutino Publishing, 2020). Van 't Veer conducts practice-oriented research on how digital innovations can contribute to the quality of care and, consequently, to the lives of people. In 2017 and 2018, he worked on the research project SoVaTass: together with the organization Accare, he investigated how digital games can support children with ASD in learning social skills.

Theo Dirksen has over 20 years of experience in marketing technical innovations that address social issues. He was involved in innovative products such as De Tovertafel and Springlab Beweegvloeren. At both organizations, he worked on bridging the gap between the research phase and commercialization of the innovation. Dirksen specializes in creating support for change, particularly in healthcare and the social domain.

Carina Bethlehem is a medical specialist (intensive care) at Medisch Centrum Leeuwarden. In 2022, she won the audience award at the science symposium Medicine Based Evidence with her work "The prevalence of mental frailty in ICU survivors and informal caregiver strain." In recent years, she, along with her colleagues at the ICU aftercare clinic, has been closely involved in developing a virtual reality game that supports patients in their recovery after an ICU stay. This game was part of the PhD project "I See U: unravelling pathways of recovery after critical illness" by researcher Lise Beumeler.

Maarten Stevens produces and guides creative innovations for healthcare, together with his team at Leeuwarden-based social enterprise 8D | Research + Design = Impact. He is convinced that playfulness and creativity can change lives, provided they are implemented in the right way. Maarten is dedicated to improving the processes between (IT) developers, creatives, researchers, healthcare institutions, and the market. As a former creative therapist in psychiatry, he has extensive experience with human behavior and all the ways in which play can contribute to effective treatments in healthcare.

Colophon

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2. COMMON OBSTACLES

It is clear that there is still much to improve in the implementation of innovations and games for healthcare. But where exactly do the problems lie? What obstacles keep recurring? In this chapter, we examine the challenges of healthcare innovation from various perspectives. It features insights from a researcher, an innovation manager, a business strategist, a game developer and a healthcare professional.

2.1 The researcher

Healthcare innovations cannot exist without scientific backing, a point on which all our interviewees readily agree. However, the ideal role of the researcher is less clear. Is the researcher an action-oriented professional who collaborates with healthcare professionals and end users to scientifically tackle the 'trial phase'? Or should researchers— as is often suggested— focus more on measuring the 'tangible benefits' for the end user and our healthcare systems?

Obstacle 1

An impatient focus on measurable results

"Understandably, the Board of Directors of any healthcare institution will want to know early in the innovation process what the tangible benefits will be for their patients and professionals," confirms Job van 't Veer, professor of Human Centered Design at NHL Stenden University of Applied Sciences. "However, to conduct a meaningful impact measurement, the innovation must first be used on a large scale and over an extended period of time. Reaching that stage requires a significant trial period to discover whether the innovative idea is viable in the workplace at all. During this trial and error period healthcare staff and clients should be included in the research. There are excellent methods to organize this process scientifically, such as investigative rehearsal. In this approach, healthcare workers are challenged to use an unfinished innovation in their next interaction with a client; how and when they do this is entirely up to them. This provides valuable insights for both the researcher and the developer about how the innovation can be effectively embedded in the workplace and in which phase of the treatment a digital product adds the most value. You want to incorporate that knowledge in the design phase, not when the product is almost finished."

Obstacle 2

Grant formats do not align well with experimentation

A period of testing and co-creation, which includes being truly open to unexpected outcomes, does not always align well with the preferences of grant providers. They typically expect a research plan with clearly defined phases and results. However, it is not impossible to secure funding for a project utilizing such a methodology, according to Van 't Veer: "In 2017-2018, we investigated how digital tools—including games—can support children with autism in practicing social skills. In the grant application, our team explicitly mentioned the iterative approach we had in mind, and the proposal was still accepted. Moreover, thinking in phases is not necessarily wrong; it provides structure and organizes your process. But there is no point in first ticking off the 'product creation' phase and only then start thinking about ways to integrate the product into the actual workplace. This should be an interplay. Involve end users step by step in the development process and give them explicit authority over the development. Their opinions matter, and they are truly a crucial part of the research phase."

Obstacle 3

The real work begins after the final phase—but for whom and how?

Thinking in terms of set project phases has another pitfall: it suggests that the work is done once the initial research project period has ended. No one will deny it doesn't. But who should carry the innovation forward, how should it be done,

"To measure impact effectively, an innovation must first be used widely and over an extended period. Reaching that stage requires a trial phase to assess whether the innovative idea is viable in daily practice."

and with what funding? Can health insurance organisations play a role in this? Van 't Veer: "I do observe a growing intention among health insurers to increase investments in prevention, but of course there are limits; understandably, not everything can qualify as 'reimbursable care.' Often, insurers can only invest once the effectiveness of the innovation has been proven, which creates a gap between research and prototype completion and actual validation." Bridging this period is a shared responsibility for healthcare institutions, suppliers (such as game and intervention developers), and the research field, according to Van 't Veer: "It's still common for suppliers, such as software companies, to deliver a product without providing practical tools for its use. This might include a handout with technical instructions, an instructional video, or a brief training session – whatever meets the needs of the innovation and its intended end users." On the side of healthcare institutions, van 't Veer observes opportunities for improvement by fostering a more collaborative mindset, rather than developing innovations in isolation. "While I do observe increased collaboration in certain areas, such as among elderly care organizations in Friesland, some institutions still favor innovations tailored exclusively to their own departments. This approach risks duplicating efforts instead of leveraging collective strengths, such as jointly navigating the testing phase."

2.2 The innovation manager

Every innovation project requires a customized approach, suited to the needs of the specific context and end users. That makes the job of an innovation manager quite challenging. One of the most challenging tasks is to synchronize all the essential knowledge and skills at the right

"Insurers often can only invest after the innovation's effectiveness has been proven, creating a gap between the completion of research and prototypes and their actual validation."

moment, which requires a true helicopter view. This makes it even more interesting to explore the common pitfalls that innovation managers encounter when implementing innovations in healthcare.

Obstacle 5

Workforce and management are not always in contact

During her master's studies in Health Care & Social Work, Claire Diets, now an innovation manager at Jeugdbescherming Overijssel, was assigned to research the effectiveness of a recently implemented VR innovation at a local care institution. The VR experience had supposedly been in use for a year. However, as Diets explains: "During my first conversation with the employees who were expected to use the innovation in their daily work, I discovered the VR headsets had been stored in a cupboard and were rarely used. This discovery significantly shifted the scope of my research, of course. The focus then turned to promoting the use of the VR headset – so I could eventually measure its effects. It became evident that the employees needed guidance and support to begin using the innovation, as they were too occupied with their daily tasks to do so independently. This experience taught

me a great deal about the crucial role of a clear implementation plan. Moreover, transitioning from a career as a youth protector to my role in the innovation department, I've come to appreciate the importance of maintaining a strong connection with the work floor at all times."

Obstacle 6

Implementation takes years – not months

When it comes to the implementation plan mentioned earlier, Diets emphasizes thinking in terms of years rather than months: "In an ideal scenario, we would first explore and implement for about five years. It's crucial to systematically identify and address improvement areas that arise during this trial and implementation period." Continuously gathering results for further development and validation isn't always prioritized in initial project designs. Often, effects are only sporadically measured—for example during prototype testing or shortly after deployment. This is a missed opportunity, as there are a lot of design choices that can be madeearly on to secure ongoing data collection on the use of your innovation. Diets explains: "For instance, professionals trained to use our VR innovation maintain a logbook of their findings. This practice not only enhances ongoing research but also informs ongoing improvements. It's a fundamental part of their training as part of the two-year research project led by Saxion University of Applied Sciences." In addition, transparency about the project's goals has proven beneficial, according to Diets. 'We inform professionals and parents that VR usage is in an exploratory phase, making them integral to a long-term research endeavor where their experiences are invaluable. This approach is generally well-received."

Obstacle 7

Ownership remains unclear

In conclusion, innovation manager Diets highlights a pitfall mentioned earlier: the lack of clarity regarding ownership of the innovation, particularly after the initial development phase. Diets: "Perhaps healthcare organizations would benefit from investing more in innovation themselves, rather than relying solely on research grants or subsidies. Using 'own' funds increases accountability and encourages careful consideration of support on the work floor and long-term implications at every step. It is challenging to recoup that initial investment, even with committed people – but sometimes that's just not the point; for us, any potential income would simply flow back into the innovation fund to improve our services. Moreover, it's about intangible benefits in the long run: you contribute – step by step – to the prevention of complex problems. This makes it even more important to have a long-term monitoring plan: ultimately, you want to be able to substantiate the added social value, especially when that value is not immediately measurable in financial terms."

"During my first conversation with the employees who were expected to use the innovation in their daily work, I discovered the VR headsets had been stored in a cupboard and were rarely used."

2.3 The Healthcare Professional

The success or failure of a game or innovation in healthcare hinges on the support of the healthcare professionals that need to integrate it into their daily practice. Not only do these professionals need to be convinced of the innovation's usefulness – it should also 'cooperate' well with their physical environment and existing treatment methods. Considering the high workload in healthcare, it is evident that the input of healthcare professionals is crucial right from the beginning to make sure the innovation actually checks these boxes. What obstacles and pitfalls do 'the people at the bedside' notice during innovation projects and the implementation of new methods, such as serious games?

Obstacle 8

Not everyone feels the urgency (at the same time)

An innovative idea can emerge at any level of the healthcare sector. For example, healthcare workers or team leaders may notice a recurring failure in a work process and decide that a change is necessary. Clients and their families may suggest improvements or introduce new ideas, while innovative researchers may see opportunities to apply new knowledge practically. Typically, a sense of urgency—'this idea solves a major healthcare problem'—motivates the creator to move from idea to taking action. The big challenge is always this: what feels urgent to one person may not seem as important at that moment to another. This can occur for various (very much legitimate) reasons and is difficult to mitigate.

Yet, a shared sense of urgency is crucial to create real momentum for any innovation project. "I experienced this first-hand during exceptional circumstances, specifically during the COVID-19 pandemic,' says Carina Bethlehem, intensivist at Medisch Centrum Leeuwarden. "At the time, the ICU aftercare clinic staff were forced to provide care remotely—over the phone. These patients, who would normally receive physiotherapy on-site, suddenly had to manage everything on their own at home. This led to much concern and a drive to find a better solution among our nursing staff—and then, exactly at the right moment, researcher Lise Beumeler came up with her plan to use gaming and technology to improve post-ICU rehabilitation. There was a sense of shared urgency that really helped propel the innovation forward."

Obstacle 9

Timely engagement—without wasting scarce time

How and when do you gather input from professionals that essentially never have spare time? It's tempting and understandable to think: 'I'll only approach healthcare workers once the innovation is further along; otherwise, I'll waste their scarce time.' At the same time, you also don't want to make important decisions—like those regarding hardware or other practical dilemmas—without discussing them with healthcare workers and end users.

Bethlehem: "Looking back at the innovation process with the VR game for post-ICU rehabilitation, in the beginning, everything in terms of technology was still open—whether it would involve sensors, something on a laptop, or something completely different. Our department and some recovering patients first tried existing hardware and games. If out of the blue someone had told my team and me: 'We're going to develop a rehabilitation game with the Oculus Go 2 VR headset,' there would likely have been a lot of resistance. Our patient group, which is mostly elderly, is not always digitally literate. But during those initial sessions, it became very clear that virtual reality—with a bit of guidance—resonated exceptionally well with the patients. They were more than capable of understanding and working with the headset once the initial tension was overcome. That early gathering was a very good move to create support for the course we've taken." Additionally, says Bethlehem, it is crucial for technical partners to avoid using too much jargon: 'I am a doctor, not an entrepreneur or technician. I simply want to experience the potential for my patients, see it with my own eyes – without too much IT jargon or promises that sound too good to be true. That puts me off, and I'm sure it does the same for other healthcare professionals."

Obstacle 10

Fear of (the consequences of) innovation

Changing methods and routines that have been established for a long time is challenging for any individual and sector, particularly when the innovation results in a significant change

"There was a strong drive among the nurses to find a solution - and it was precisely at that moment that researcher Lise Beumeler came forward with her plan to use gaming and technology in rehabilitation after an ICU admission."

to someone's role – or even more profoundly – renders entire jobs obsolete. In one of their articles on the 'Brilliant Failures Award in Healthcare', the Dutch subsidy provider ZonMW wrote: "The social benefits can be immense, but if an innovation changes the work distribution and thus 'disadvantages' a particular group, the chance is real that the innovation will not take off." An example is the winning entry for the Brilliant Failures Award in Healthcare in 2014. The implementation of a new and effective treatment method for women with myomas mainly failed because gynecologists did not want to 'hand over' their patients to another specialist. Fear of change and the – very human – tendency towards self-preservation should not be underestimated when introducing innovations. Suppose your innovation becomes successful; what does that mean for the daily lives of the professionals you are now asking to help test and brainstorm? Understanding—and truly empathizing with this—helps you grasp potential negative or delaying responses and mitigate them accordingly.

2.4 The business strategist

In the Netherlands, enterprises specializing in developing serious games and other digital innovations for healthcare are mostly small or medium-sized. In other words, they are typically not large companies with substantial assets or reserves. Still, they (try to) fill in the gap between scientific knowledge and a functional, applied product. This endeavor usually wearing many hats. Individuals who initially pursue their passion for technology, creativity, and gaming often find themselves unexpectedly navigating through medical regulations, policies of research institutes, and the structures of large healthcare institutions. Amidst these challenges, SME entrepreneurs often grapple with a fundamental question: "How do I ensure I can pay my programmers and designers at the end of each month, and more crucially, how can I sustain this over the long term?"

Obstacle 11

Technology outpaces the validation process

The scientific validation of healthcare innovations is a lengthy process, typically spanning several years. This requirement poses a significant challenge for smaller enterprises in the innovation sector. Put bluntly, by the time a healthcare game completes validation and is ready for commercialization, technological advancements may have already surpassed the product, rendering it outdated.

Maarten Stevens experienced this first hand with 8D Games' first serious game prototype, the Ice Skating Game, developed in collaboration with Universitair Medisch Centrum Groningen (UMCG) in 2013. This game aimed to assist elderly individuals with balance exercises using the Kinect, an affordable and accessible sensor for home use at the time. Initial results from the prototype and accompanying research were promising: clients practiced more frequently and for longer durations, thereby reducing the risk of falls and associated societal costs.

After the research project ended, however, Stevens encountered complicated and lengthy procedures, from validation to certification and legal aspects. "As a new entrepreneur, I really pushed to advance the product," Stevens explains. "But when I finally had some clarity on steps to be taken and IP and legal matters, the Kinect was already off the market. And sadly, by that time, I had no more budget whatsoever to keep my team working on further development."

Obstacle 12

Developers are not necessarily salespeople

Not every developer who creates a game or innovation for healthcare has the ability or desire to also market and promote their product. Stevens: "Over the years – through trial and error – we've learned a lot about marketing and financing. But our true passion still lies in crafting innovative games that merge science and technology. When a researcher or institution approaches us with a problem that gaming could potentially solve, we immerse ourselves in identifying the best form and hardware in collaboration with end users. This creative co-creation process is where our strength lies—it's pivotal preliminary work for gaining support among end users and professionals, as researchers often emphasize. But making money from the final game is not our goal, simply because our expertise lies in creative innovation and game development, not in business development or product placement. Therefore, we are happy to transfer the intellectual property to a stakeholder closer to the patient, especially if it means the game ultimately reaches more people."

"Earning money from the final product is not our primary goal. Quite simply, our expertise lies in creative innovation and development, not in business development or product sales."

Obstacle 13

Healthcare is theory-heavy

Stevens' experiences sound familiar to Theo Dirksen, a former business developer at Tovertafel from 2014 to 2016. "Healthcare is strongly focused on theoretical knowledge," he says, "and most healthcare organizations or insurers only want to allocate budget to a game or innovation that is thoroughly scientifically validated. It's understandable, but it also turns innovation for healthcare into a complicated chicken-and-egg story: products are not implemented because they're not validated, and not validated because they're not implemented." Dirksen advocates for a more pragmatic approach: "A scientific foundation is essential, but afterward, it's about taking action—entering the market and allowing the scientific foundation to grow while the product is in use." To ensure sufficient support for this, Dirksen advises making the potential impact of the innovation understandable early on, especially for patients, their loved ones, and healthcare professionals. "At Tovertafel, family members of the elderly participants were present during the initial tests. They immediately saw how much their father, mother, grandfather, or grandmother enjoyed the game. This grassroots enthusiasm greatly facilitated the product's adoption in nursing homes."

Obstacle 14

The business case is often overlooked

Serious games for healthcare also face a chicken-and-egg dilemma in another way. As should be clear, innovation in healthcare typically adopts a co-creative approach. This implies that you won't have a clear idea of the final product from the outset; otherwise, co-creation and iterative work lose their purpose. This often leads initiators to avoid spending much time on the business case for their product—after all, it's challenging and premature to develop a business plan for a game or innovation that hasn't yet taken its final form.

According to Dirksen, it is crucial to begin with the business case: "Ideally, considerations about the eventual financing model of the product should be integrated into the design process—just as the needs and desires of end users are taken into account in design choices. Otherwise, you might find that the product lacks essential functionalities necessary for marketing purposes, such as a link to a user platform." Stevens adds that this doesn't always mean marketing directly to consumers or healthcare institutions: "It could also involve our team embedding necessary functionalities during prototype development to enhance the product's chances of further advancement. For instance, incorporating research inquiries or advising on GDPR-compliant data collection for scientific validation. This approach may not be immediately apparent, but I view it as a constructive way for SMEs to contribute to sustainable impact and increase the likelihood of implementation, even if they do not intend to commercialize the product themselves."

"A scientific foundation is essential, but afterward, it's about taking action—entering the market and allowing the scientific foundation to grow while the product is in use."


8D GAMES.

3. BEST PRACTICES

Brief introduction of cases

Case: The Magic Table (De Tovertafel)
Initiator: Dr. Hester Le Riche
Developer: Tover
Owner: Tover

The Magic Table is a care aid introduced to the market in 2015 by the Dutch company Tover. It is a device hung from the ceiling that projects interactive games onto the table. The concept behind the Magic Table originated in 2009 from Hester Le Riche's doctoral research at Delft University of Technology. During this research, she explored how to activate people in the mid to late stages of dementia and break through apathy. The Magic Table is now actively used in the Netherlands, Belgium, England, Ireland, Germany, France, Sweden, Denmark, Norway, Australia, New Zealand, Canada, and the United States.

Case: VR Game to Support Recovery After an ICU Stay
Initiator: Dr. Lise Beumeler, Medical Center Leeuwarden & University of Groningen - Campus Fryslân
Developer: 8D Games

In this VR game, the patient sits in a virtual, cozy living room. Here, the patient must solve a jigsaw puzzle using the exact hand and arm movements employed in regular rehabilitation therapy after an ICU stay. An infrared camera on the VR headset records all movements, eliminating the need for additional accessories. The game can be played at four different levels, making it suitable for use in aftercare clinics as well as on the ICU unit itself. The results of the first (pilot) study with the VR game can be found in Dr. Lise Beumeler's dissertation: "I See U," about meaningful recovery after an ICU stay. Currently, the innovation is being used on a small scale and is being further developed based on user experiences.

Case: VR Experience for Complex Divorces
Initiator: Claire Diets MA
Developer: Enliven Social Enterprise
Owner: Enliven

Jeugdbescherming Overijssel, in collaboration with Enliven, developed a VR experience that can be used in complex divorces. Through virtual reality, parents experience the situation from the child's perspective, making them more aware of the emotions that a complex divorce can trigger. The reason: about 80% of the cases at Jeugdbescherming Overijssel arise from complex divorces; the situation becomes untenable for the child because the parents are separating. Despite the efforts of youth protectors, this number has not decreased for years. This urgency led to the idea for a virtual reality experience. VR is 'immersive'—users can immerse themselves in the experience—making it well-suited for conveying emotions. The VR experience was launched in 2021 and is currently in use within Jeugdbescherming Overijssel.

Case: SoVaTass
Initiator: Accare and Dr. Job van 't Veer (NHL Stenden)
Developers: NHL Stenden and 8D Games

During the SoVaTass research project, three digital games were developed to assist children and young people with autism in practicing social skills. Results included a website where users can create their own comic strips about themselves, a tablet game that challenges players to use various social skills to progress, and an escape room game designed to foster collaboration among children to solve puzzles together. The creative development was employed as a research tool, gathering qualitative input from both children and therapists throughout the process of conceptualizing, designing, and implementing solutions. During the research project, Accare collaborated with the professorships of Youth Care and Care & Innovation in Psychiatry at NHL Stenden University of Applied Sciences, the professorship of User-Centered Design at Hanze University of Applied Sciences, and the professorship of ICT Innovation in Healthcare at Windesheim University of Applied Sciences. Additionally, various institutions in Northern Netherlands (Kinnik and GGZ Drenthe), schools in Northern Netherlands (JJ Boumanschool, De Caleidoscoop, Obs Meander, Professor Wassenbergh School), the RGOc, the University of Groningen, and the National Center for Child and Adolescent Psychiatry were involved.

3.1 Preparation

Start at the end

Imagine the innovation is ready for implementation. Both professionals and patients are eager to use the product. What practical objections might still arise at this point? What stakeholders do you still need to convince? These potential objections should impact all phases of the innovation project, from involving essential stakeholders to defining rigorous technical requirements for developers. By beginning with the end in mind, it becomes possible to form the right partnerships and preemptively address resistance during the design phase, which could otherwise impede implementation.

Field-tested example

"At Tovertafel, we noticed that staff in nursing homes were somewhat hesitant about the technology; they were afraid they wouldn't be able to get the device to work. This made it clear to us that, regardless of any wild design ideas, the hardware had to be really easy to operate and stay that way, even as we developed new games. Additionally, we arranged a simple yet effective form of technical support that helped overcome resistance. During the initial period of use, a student assistant always accompanies the staff to turn on the device and offer assistance to those who encounter difficulties with it. This provided a great deal of peace of mind and confidence, both for the staff and the care administrators."

- Theo Dirksen

Case: The Magic Table

Involve end users in determining the conditions

No matter how tempting it may be, don't rush into a particular technique or form for your innovation. Co-create the technical and practical conditions with end users and involve them in the planning when all options are still open.

Field-tested example

"Both nurses at the aftercare clinic and recovering patients played a significant role in the planning, particularly in the choice of hardware to be used. Genuine curiosity about what works for the patient and adjusting accordingly is crucial. That's why we started very small with a few demos at Medical Center Leeuwarden, purely to give the target groups a feel for the technical possibilities. Their reactions and preferences were crucial for the further planning and the prototype we developed."

- Lise Beumeler

Case: VR game to support recovery after an ICU stay

Look for research collaborations

In all cases in this whitepaper, researchers played a crucial role. Sometimes as the 'initiator' of an innovative idea based on their own research, sometimes as an analyst of the implementation process, and sometimes at the very end when the effectiveness of the innovation needs to be assessed. Ideally, there is a scientific component present in all stages of the innovation project—but in practice, this is complicated and costly. A solution can be to address research on similar innovations in a broader context.

Field-tested example

"Currently, our VR experience is part of a larger, two-year study by Saxion University of Applied Sciences. They are studying how four organizations—including ours—handle the implementation of innovative working methods. At a later stage, when the VR headset has been in use for about five years, I envision an impact measurement taking place. What I would want to know then is: 'Is there a decrease in the number of children involved with a youth protector due to complex divorces in organizations using the VR experience?'"

- Claire Diets

Case: VR in complex divorces

[How the use of virtual reality can help with conflict divorces]

Open dialogue on maintenance and ownership

A knowledgeable developer will ask this question early on. If not, make sure to bring it up yourself: what happens to the product when the initial development phase—and often the funding—ends? Digital products also need maintenance. They need to be updated periodically to function optimally. Who will take care of this? What part of the budget is needed for this? Are there (joint) possibilities for follow-up funding?

Field-tested example

"Especially in fundamental research or entirely new combinations of hardware and software, it is not unusual for only a prototype to be available after the initial development phase, which still needs further development. However, it is important that this goal is communicated and agreed upon early: we are creating a prototype, not yet a finished product. This makes a big difference in the choices we (have to) make during development. You want to discover the technical feasibility and application possibilities and not close anything off yet. In many cases, we write a technical recommendation at the end of such a project, which can form the basis for the follow-up application. This is a very different task than creating something that can be immediately used in the workplace, but technically, these projects are often incredibly fun, challenging, and truly innovative."

- Johan van der Meulen, 8D

Case: Prototyping for Stichting Milo and OOK-OC!

3.2 Development

Invite professionals to think about using the innovation within existing work structures—especially when the product is not yet finished

An innovation can look great 'on paper', but if the design does not consider the reality on the work floor, implementation will be very difficult. Therefore, thoroughly map out what the innovation or serious game will mean in practice. Not from behind a desk, but by engaging in conversation. This is the only way to find answers to fundamental questions ('Is this innovation an addition to the existing treatment method and if so, in what way?' or 'Will this completely overhaul the work process or even replace jobs?'). The answers to these questions should rightly guide your design process and implementation plan.

Field-tested example

"During the SoVaTass project, we carefully mapped out how children and professionals normally go through social skills training; this is known as journey mapping. Then, we looked at which part of that process a digital tool would be most valuable—partly by presenting this to the care professionals themselves. Simply by challenging them to think along: 'Suppose you were to apply this prototype in your training tomorrow, how and when would you do that?'"

- Job van 't Veer

Case: SoVaTass

Be transparent: the product is still in the research phase

Innovating is a mindset—with an open mind, you determine step by step what an innovative product will look like. It's a special process in which end users can also be explicitly involved. Being transparent about the phase the project is in prevents you from giving clients false hopes ('this will solve all problems') and places clients alongside innovators, researchers, and care professionals.

Field-tested example

"My experience is that children and parents are willing to participate, even if the intervention is not yet 'proven'. They find it interesting to be part of a research project. This also gives them a different position—we're not telling them 'how it should be done', but rather asking for their advice. They are the pioneers who can contribute their input to how the innovation develops further."

- Claire Diets

Case: VR in complex divorces

close relatives of clients in the development as well

Ultimately, everyone working on a healthcare innovation aims to do the same thing: provide better care for people. Make that human aspect tangible, even in the early stages. Seeing firsthand what the potential impact on the patient is does more than any explanation or pitch ever can.

Investigate whether the burdens and benefits can be shared with other care organizations

Engage with other care organizations that may benefit from the innovation. Together, you are stronger in the notorious 'difficult' periods, such as the period between the delivery of the prototype and validation. Without sufficient user experiences, an impact study is impossible, and without an impact study, follow-up funding or reimbursement from an insurer is complicated. Can you collaborate to share the burdens—such as the time of already busy employees?

Field-tested example

"In the project I am currently working on—a smart bed sensor that alerts care professionals when a client needs attention—three care organizations are working together on different innovations. The 'test and trial phase' is divided among the organizations because they all have an interest in the products being developed. This prevents organizations from needlessly reinventing the wheel alongside each other while the innovation solves a shared problem."

- Job van 't Veer

3.3 Follow-up: the Phase After Initial Development

Ensure the innovation is known organization-wide

The people who will directly work with the game or innovation should already be well aware of it. But don't forget the rest of the organization— the more people are informed, the greater the chance that someone will think of using or further developing the product at the right moment.

Field-tested example

"It helps to communicate the existence of the innovation organization-wide, ensuring everyone knows it exists. Most members of our management team have experienced the VR experience themselves. This way, they know what it involves and why we believe VR can positively contribute to our services. Even employees who do not work with it directly can experience the innovation. For example, in our organization, when youth protectors bring in a new case involving a complex divorce at Case Management, the behavioral scientists should immediately think: 'We have that VR headset—we can use it with this family.'"

- Claire Diets
Case: VR Experience for Complex Divorces

Appoint a ‘super user’ as the first point of contact

Manuals and training are important, but repetition is even more crucial. Undoubtedly, situations will arise on the work floor where someone wants to use the game or innovation but encounters difficulties—and the client could knock on the door at any moment. A central contact point on the work floor can remove these practical barriers.

Field-tested example

"When implementing new working methods, we often focus on personal contact and accessibility at MCL. Within a team, a few ‘super users’ are designated: they are familiar with all the ins and outs of the innovation and help direct colleagues when something is unclear. This feels close and accessible and therefore works very well. For the success of such a change, enthusiastic key figures in the department are indispensable."

- Carina Bethlehem
Case: Rehabilitation VR

Seek efficient combinations between implementation and (long-term) measurement

Carefully consider how the staff will use the innovation or game and think about how to integrate a reporting system as easily as possible. Long-term reporting is the beginning of mapping the impact.

Field-tested example

"At Tovertafel, the student assistant providing technical support has an additional task: collecting feedback. Comments on usage are reported back and collected in an online community—game developers can then build on this."

- Theo Dirksen
Case: The Magic Table

"The professionals trained to use the VR headset have also learned how to keep a logbook to document their experiences as part of the procedure."

- Claire Diets
Case: VR Experience for Complex Divorces

FINALLY: SHOW IT TO THE WORLD!

Share your experiences and the various steps of the innovation process—not just internally or through your personal channel. Definitely involve the communication department of the involved care organization(s). It helps when a trusted name associates itself with a game or innovation, if only to promote an innovative mindset and inspire others to think about improvements in their own field. Working together for better care—that's what it's all about in the end. And everyone should hear that!

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