Success through Design & Engineering

How to build meaningful digital products through closer collaboration between design & engineering

clearpoint

What’s inside?

Why is the design and delivery process often so painful?

To achieve success in digital channels, businesses need to deliver software in ways that are rapid, efficient, and aligned with their customers' needs.

A proven approach to achieving this mission is establishing balanced product teams. Engineers, designers, and product managers working together in an agile manner.

But sometimes, designers, engineers, and product owners have vastly different ways of working that get in the way of rapid, effective progress.

With the evolution of new ways of working, the process of designing and building beautiful, functional digital products doesn't have to be a fraught situation.

In most development projects, you have three distinct points of view - the product owner, the design team, and the engineering team. Every project has time and budget constraints, and on top of that, every participant brings their own priorities and ways of working to the table.

To achieve success businesses need to deliver software in ways that are rapid, efficient, and aligned with their customers' needs.

From the business stakeholder's point of view, they have a problem that needs a solution and know they need to bring in experts to design and build this solution. They'll likely put a business case together which will result in approval to build a Minimum Viable/Valuable Product (MVP - more on this shortly). They will expect an effective solution, delivered on time and within budget, that enables the business to realise the committed Return on Investment (ROI) identified in the business case.

From the designer's point of view, they want to design an experience that meets user needs and delivers an outcome that exceeds expectations. They use customer research, prototyping, and user testing as a way of understanding and validating that business needs and user needs are being met.

From the engineer's point of view, they want to build a functional, stable, secure, working product that adds value. They want to deliver this using an agile process of building well defined features that showcases end-to-end functionality as soon as possible for the business stakeholders.

The uncomfortable truth behind the scenes is that regardless of whether it's internal or external teams involved, the different approaches have conflicting priorities. If either the designers, or engineers kicks off first, in isolation from the others - the setting of priorities, plan and approach tends to result in the remaining disciplines having to unnecessarily compromise in order to deliver within schedule or budget constraints.

That lack of understanding from all sides about how much time, effort, and skill goes into each part of the project, can lead to disappointment all around, and frustration that builds as teams work forward through the project.

The balance of investment between design and engineering needs to be carefully managed. Building anything without a human-centred design approach to understanding user needs often results in a poor solution that fails to be useful to end-users. Similarly, designing a product without consideration of engineering requirements, may result in the design being infeasible to deliver.

Either way, when the product is actually delivered it doesn't reflect the overall vision, nor meet the desired outcome, leaving everyone potentially dissatisfied.

What are the common pain points of not working together collaboratively?

Too many “cooks in the kitchen”

In every project, there will be many parties - from business analysts to marketers, the designers, the engineers, and most importantly - the end customer!

Everyone has their point of view, which can lead to a lot of noise and misalignment, and plenty of room for communication misfires. When there is no “agreed way of working” at the outset, there can be differing priorities which are a huge roadblock for collaborative working.

A single person controlling communications results in bottlenecks

When any single person owns the communication channel between the designers, engineers, and other stakeholders, and if there’s no direct conversation planned or encouraged, timelines can blow out while everyone waits on an answer from that one person controlling all the exchange of information. What should be a quick answer can take days to turn around.

Non-technical designers and researchers lacking an understanding of how their designs will be built

The way the industry has grown some designers specialised in User Experience Research may have never actually participated in the development or the build of their designs. Through the increasing specialisation on offer, designers may miss the opportunity to be close to the code. This can lead to designs that are uninformed by the time, effort, or complexity needed to implement the design.

Choosing a technology solution before establishing goals/outcomes

Key stakeholders may have already chosen to work with a certain platform or technology because of personal preferences, procurement parameters, existing contractual obligations, or legacy investments in technology solutions that are too difficult to retire. This decision may be made before the project even starts. Or, sometimes the engineering team picks the technology and architecture based on implications for the build, but without any thought to the needs of the experience or the design requirements. Without design having a voice early on, the end experience is compromised by that first lack of initial collaboration, leading to poor outcomes for users (and ultimately the business).

When discovery goes rogue

Discovery is a set of activities at the beginning of a project that aims to understand the business requirements and goals, the technical structures and constraints, and the needs and outcomes for the end-user. Discovery is imperative to the success of any development project, but it needs to be scaled to the overall scope of the project. Too little discovery and projects get buried in expensive rework late in the game when new information emerges. Similarly, nobody has infinite time or money to explore ideas endlessly. There is a need to identify the problem, make connections, and deliver actionable insights and solutions to maintain momentum.

Extensive discovery activities can cost a lot of money. For some projects that may be money well spent. But time is something you can't win back.

When analysts or designers don't have any ownership of the end outcome or visibility of the overall budget and delivery, they may allocate more time than needed to their own work without appreciating the consequences for the project as a whole.

A feature-led approach driving pointless functionality based on assumptions about value

Historically, product were made by senior leaders, product owners, and engineers listing features, agreeing on them, and building them into the product with no research into if they were building something their users wanted, needed, or even understood. Success was based on the delivery of code, but rarely with a follow up if the ever-increasing number of features was being used as intended.

Human-centred design changes this model. It ensures assumptions are challenged, and features are aligned specifically to improve the user's ability to complete the tasks they hold as important.

However, in teams that are feature and engineering-led, where design is an afterthought to add colour (or there is no designer input at all), teams can successfully deliver feature after feature, but with no one to actually use it. Or worse, features are changed and extended based on an internal 'expert' viewpoint - making it increasingly difficult and frustrating for the end-users to engage with.

Not balancing the overall budget

In almost all development projects, budget is a key constraint. Often this is set early in the process as a business case or roadmap that enables the business to agree to a level of investment in the work.

In many cases, this is done by a key stakeholder in isolation, and without the assessment and collaboration of design or engineering teams (who may still be working on the previous piece of work).

A flow-on effect of this is that teams may be working under an ‘assumed’ cost and effort for the outcomes they need to achieve. Worse, if there is a lack of visibility of the total project budget and allocation, teams have no context of the impact of their decisions on other parts of the budget. If design and engineering don’t work together from the outset, there’s also no opportunity for a combined approach to solve challenges in ways that align to the overall budget needs of the project.

Designing for glory, instead of designing for outcomes

Making magnificently beautiful products that aim to win awards, but that don’t improve critical outcomes like on-site conversion rates, is an “own goal”. Great for the brand, but not for reaching the goals of the business or customers. Often this is a sign that designers and engineers are not working together. Teams should be collaborating on defining what is the greatest value they can each deliver that will get to market quickly with a successful impact on the project’s goals.

Engineering agile process does not allow for design to happen effectively

The traditional engineering agile process is focused around a team delivering defined features, within achievable timeframes. This process of breaking work up into small pieces for building within a sprint tends to be in conflict with the need to define the end-to-end experience.

For example, “How will a user complete their task in the best way possible?” Versus: “How will individual fields and data APIs behave?”

It breaks things up into granular pieces but that doesn’t allow for a human centred design process. Often this will result in engineering teams rolling on with development to keep the team busy without actually designing the resulting experience.

Differing philosophies: Designers seek to explore uncertainty, engineers seek to remove it

Traditionally, engineering teams are focused on delivering a certain outcome. Engineering teams tend to have an ‘inside-to-outside’ process, focusing on how to build from architecture to features to deployment. Uncertainty tends to create delay and confusion. Reproducing outputs the same as others have in the past may be a win.

On the other hand, design teams focus on exploring different alternatives. Finding the heart of the problem and the nature of the actual solution. They tend to add new alternatives to explore the ‘what-if’ that might lead to innovation and a differentiated outcome. Reproducing outputs the same as others have in the past is often a failure.

This difference in philosophy can mean engineers are reluctant to participate in early design activities as they don’t feel comfortable in the way of working that designers are used to, or feel that they already “know the answer” without research. However, without being involved in the design process, they don’t usually have any contact with the end consumer in their process.

What is to be gained by working together collaboratively?

The opportunity of working with design and engineering as a collaborative team, is that **from the outset you're designing things with the idea of them being made, quickly, and to solve the right problem.** Engineers are included in the journey from the beginning - fully connected with the purpose and needs of the users of the solution. When everyone's on the same page, the communication and feedback is open, and the resulting delivery is rapid and gives a very real sense of momentum that is crucial to success.

What’s designed is actually built, and meets the needs of the user and the business

The reality in many projects is that the design doesn’t ever get built.

However, when designers and engineers work as one team collaboratively, there is shared and active effort invested in balancing the needs of the design against how it will be built and delivered.

The silos that result in ‘reinterpreting’ design that’s been ‘thrown over the wall’ are changed into joint effort with less surprises and compromises for everyone. When you’re working together from the start, the design and build happens in sync - integrated to achieve the same outcomes.

Momentum is everything

Taking a ‘Lean UX’ approach with multidisciplinary teams keeps the work focused on outcomes and choosing activities that get you to key milestones as quickly as possible. This approach requires decision-makers and practitioners working together as one team prioritising the ‘making’ of something with a new way of working. Projects that take a lean and pragmatic approach to delivering as quickly as possible with a solid foundation of continuous iteration feel very rapid in comparison to the clunky, old way of waiting for independent teams to deliver and hand-over to each other. From the client’s perspective, every month not-in-market is a lost opportunity, and also a risk that a more agile competitor might seize that opportunity for themselves with an offering that’s faster to market.

Time-saving

Time-saving happens in the gap between briefing different suppliers, getting them ramped up, and onboarded with the knowledge needed to engage. From the very start, the team is connected, sharing planning, design, architecture, and research. They do not need to be briefed and brought up to speed about the ‘why’, but learn it together, empowering them to make decisions more easily with first hand knowledge.

What does a functional team for design and engineering together look like?

There are a number of ways we at ClearPoint approach this to ensure that we get each team on the same page.

Establishing a single team that is both designing and engineering on the same project, fully functioning and collaborating together, sounds easier than it is. For this to work, they really need to be ‘reforged’ in a new way of working. We ensure our approach allows us to identify as one team working on solving the same problem together.

Leadership needs to endorse, adopt and model this new way of working - a change in culture is led from the top. We deeply believe in this as the future for both design and engineering. Our leaders set the agenda for how we work together, and model the behaviour and changes needed across the team.

Following this is establishing the culture of the team. Based on the "forming, storming, norming, and performing" model, we build a sense of unity that everyone is working together, as opposed to separate factions. Then agree on the ways of working.

Everyone brings in their own expectations around what good looks like, what processes they should follow, and their dogma around what rituals are required to get things done.

To establish a new way of working, everyone agrees to put aside their "defaults" and decide how they're going to collaborate as one team. This is the beginning of ensuring functional collaboration, because you're putting aside historical conflicts, differing values, and of different ways of working and agreeing on a new way forward. Defining a social contract up front allows expectations of practices and behaviours to be discussed openly, and agreements set. A team canvas or charter is often a valuable tool to foster alignment.

Every project is different

Starting with a blank wall, we design how, as one team, with a new way of working, we are going to solve the specific challenges of this project. Then we decide together on the activities that we believe are necessary for what we need to deliver.

It's a different way of working than the traditional way - where the design team works out how they're going to do the design, and then the engineering team figures out how they're going to build that (as yet unresolved) design.

We are granting each other permission to do the work that we think is necessary, sharing ownership, and recognising different skills and capabilities. The act of working out the activities together is part of establishing new norms for collaborating and compromising as a team. That not only solves an operational problem, it contributes to establishing our team culture.

A new agile

What is 'agile' at its core? The whole point of working 'agile' was to remove bureaucracy and delays creating low value documentation. But over time, at an enterprise scale, agile has become innately less agile, and more bureaucratic. It has become a highly ritualised affair, sometimes with lots of documentation and lots of user story writing. It's inherited many of the things that it was supposed to remove out of the process. It's hard for those teams to collaborate because the process and rituals take priority over people delivering working software.

By building teams with design and engineering working side by side, we create an opportunity to redefine how we work in a more human, agile way together.

Checking in and having frequent conversations is a priority. We go back to the roots of people working together to make a thing and working on whatever 'makes the boat go faster.'

Milestones and cross-over rituals

We ensure there is plenty of planned collaboration to provide the opportunity to give and receive feedback early;
to ensure a good technology lens on discovery and, likewise, adequate design participation in the refinement sessions as features are being built out.

As one team, it makes sense to participate in each other's key milestones. When developers turn up to user testing sessions to see customer feedback, and designers turn up to showcases to see engineering deliveries, it builds a shared sense of teamwork and support.

Obviously it's not practical for everyone to overlap in every ritual or activity, but key moments on all sides are shared and celebrated. Working on a project for a local KiwiSaver provider, ClearPoint's design and engineering teams kicked off with a foundational charter session, and continue to take part in each other's rituals and milestones, while still delivering in two interconnected delivery streams. As a result, they have a much closer alignment with how the design needs to be built as well as supporting the current sprint and delivery of features.

Using collaborative tools

New cloud-based tools like *Figma* and *Miro* help foster collaboration by making each other's work highly visible. They are part of a new generation of tools that improve upon the collaborative features of the likes of *Confluence* or *Jira*.

How do we measure success?

The key measure of success we should always have our eye on, is how fast we are learning and how fast we are making. The ultimate goal in any project is that we're supposed to have made the 'thing.' Everything we do should be on that path of learning to make the right 'thing'.

When a team feels like it's "failing", it's often because it's taking too long or spending too much money on doing things that don't feel like they're valuable.

The goal for both design and engineering is to learn through making. So the key metric is, did we do a 'thing' that helped us learn something significant? Was that helping us make new and better 'things'? Are we making the next 'thing' that delivers the most outcome for the business, and that ultimately adds value for the customer?

With this new way of working, functional teams work together to achieve lean, meaningful MVPs

At its most basic, an MVP (Minimum Viable Product) is a barebones version of a product that can get to market very quickly - so that businesses can start making revenue, grow market share, and gain feedback to improve the product in future releases.

However, if we only focus on the minimum functionality, we may fail to deliver something that meets the minimum needs of users (like a 'bridge to nowhere'). Building a dashboard is great, unless your need is to complete an action that hasn't been built yet. We have to be careful not to cut too many corners and sacrifice the user experience completely.

At ClearPoint, we prefer to think about it as building a Minimum "Valuable" Product. Solving the problem together, earlier, leads to a better outcome overall. Rather than looking to create the minimum viable iteration of a product, designers and engineers work together to create the minimum iteration of a product that provides real value.

Working with a US-based health startup, ClearPoint brought together a single cohesive team including designers, and frontend and backend developers, and worked through rapid sprints to design and build in parallel on a day-by-day basis. **By just day two, the team had a branded, working app, already connected to a data source.** This is just one example of how working together closely, aligned with a goal of a lean MVP, leads to better, faster, iterative products that achieve goals.

We're focused on providing the best people and the best solutions. ClearPoint tailors a team that can tackle complex problems and deliver better and faster for our clients.
It takes the best people to move to this new way of working, and efficiently deliver projects with high quality outcomes.

Dual Track Design and Engineering Approach

One team working in a regular planning cadence.

Shared visibility of progress on current and future features.

Collaboration and clarity on when a feature is ready to enter sprint.

Discovery & Design

Design Sprint

Design planning

Design Sprint

Design planning

Requirements walkthrough & sign-off (led by product owner)

Design

Tech

Business

Backlog (signed-off ready to build)

Build

Sprint planning

Development Sprint

Sprint planning

Development Sprint

Sprint planning

Development Sprint

It’s time to collaborate

ClearPoint are market leaders in building digital experiences. From planning, to designing, to engineering and implementation, we’re your full service partners, dedicated to making your design and engineering projects a success.

Our team lives and breathes design and engineering everyday. What’s more, we have worked with some of Australia and New Zealand’s largest and most respected enterprises.

We would love to talk to you about how to take your projects to the next level through collaborative design and engineering processes.

Are you ready for your digital future?

clearpoint