

Case Study Title: The Voice of the Customer and the true impact of project performance.

Company Overview | ARDMAC | ardmac.com

Ardmac is an international specialist in turnkey delivery of controlled environments, serving the Life Sciences, Data Centres, Microelectronics, EV Battery Facilities, Aerospace, Commercial and Industrial sectors. With almost 50 years of experience, we've evolved into a leading European provider of cleanrooms, datacentre systems, modular offsite facilities, fitouts, refurbishments, and manufacturing facility construction.

We deploy the latest digital construction technologies to deliver high-value workspaces and precision-built environments tailored to client needs. Our reputation is founded on deep sector expertise, uncompromising safety, and highly effective collaboration.

Ardmac stands as the contractor of choice for complex, mission-critical projects, delivering excellence as standard.

Author



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Overview & Background to the Lean Initiative

At Ardmac, our Lean initiative is rooted in a commitment to delivering exceptional value through continuous improvement, innovation, and client collaboration. Recognising that the construction industry faces challenges around inefficiencies, rework, and safety risks, we adopted Lean principles to streamline processes and optimise outcomes. Central to this approach is the Voice of the Customer (VOC), which drives every project decision and ensures our solutions meet real client needs.

Four years ago, Ardmac began embedding off-site pre-manufacturing into our workflows, starting with a 40% Pre-Manufactured Value (PMV). Our goal was ambitious: to transform modular construction

by increasing PMV to over 85%, delivering fully Factory Acceptance Tested (FAT), ready-for-install solutions that reduce on-site complexity and improve project certainty.

Through Lean thinking, continuous client engagement, and innovation, we have achieved and surpassed this target on multiple recent projects in 2024 and 2025. This initiative not only accelerates schedules and enhances safety but also strengthens client trust and fosters long-term partnerships. Ardmac's Lean journey underpins our reputation as a forward-thinking leader in modular, off-site construction, driving sustainable growth and superior project delivery.

Lean Initiative Undertaken – Lean Thinking, Tools, Techniques

The Voice of the Customer and the true impact of project performance.

Voice of the Customer (VOC) refers to the process of capturing clients' needs, expectations, and feedback to guide project delivery and continuous improvement. At Ardmac, integrating VOC into our planning and execution is essential to ensuring outcomes truly reflect what our clients value most. By actively listening to our clients, we prioritise their needs and requirements that deliver the greatest impact, eliminate unnecessary work, and avoid costly rework.

When VOC is embedded early, it empowers our teams to set clear objectives and make informed decisions at every stage of a project. By understanding and prioritising client needs from the outset, we ensure our projects are delivered on time, within budget, and to the highest standards of safety and quality. This proactive, client-focused approach strengthens relationships and builds trust.

Incorporating VOC not only enhances project outcomes but also deepens stakeholder confidence, as clients feel genuinely heard,

valued, and engaged throughout the process. The results are clear: increased client satisfaction, stronger long-term partnerships, and significant repeat business, a true testament to the trust and loyalty we earn. By fully embracing VOC, we move beyond simply meeting requirements; we focus on delivering real value, supporting our commitment to innovation, quality, and continuous improvement. This mindset underpins our vision for sustainable growth and solidifies Ardmac's position as a trusted partner for our clients, time and again.

Within our Lean approach, VOC is a fundamental pillar for defining project goals and critical requirements. At Ardmac, VOC is at the heart of delivering value, it captures both the true needs of our clients and drives the development of Critical to Quality (CTQ) that guide our improvement initiatives. By translating VOC into clear, measurable specifications, our teams systematically reduce defects and variation, reinforcing our focus on operational excellence and precision.

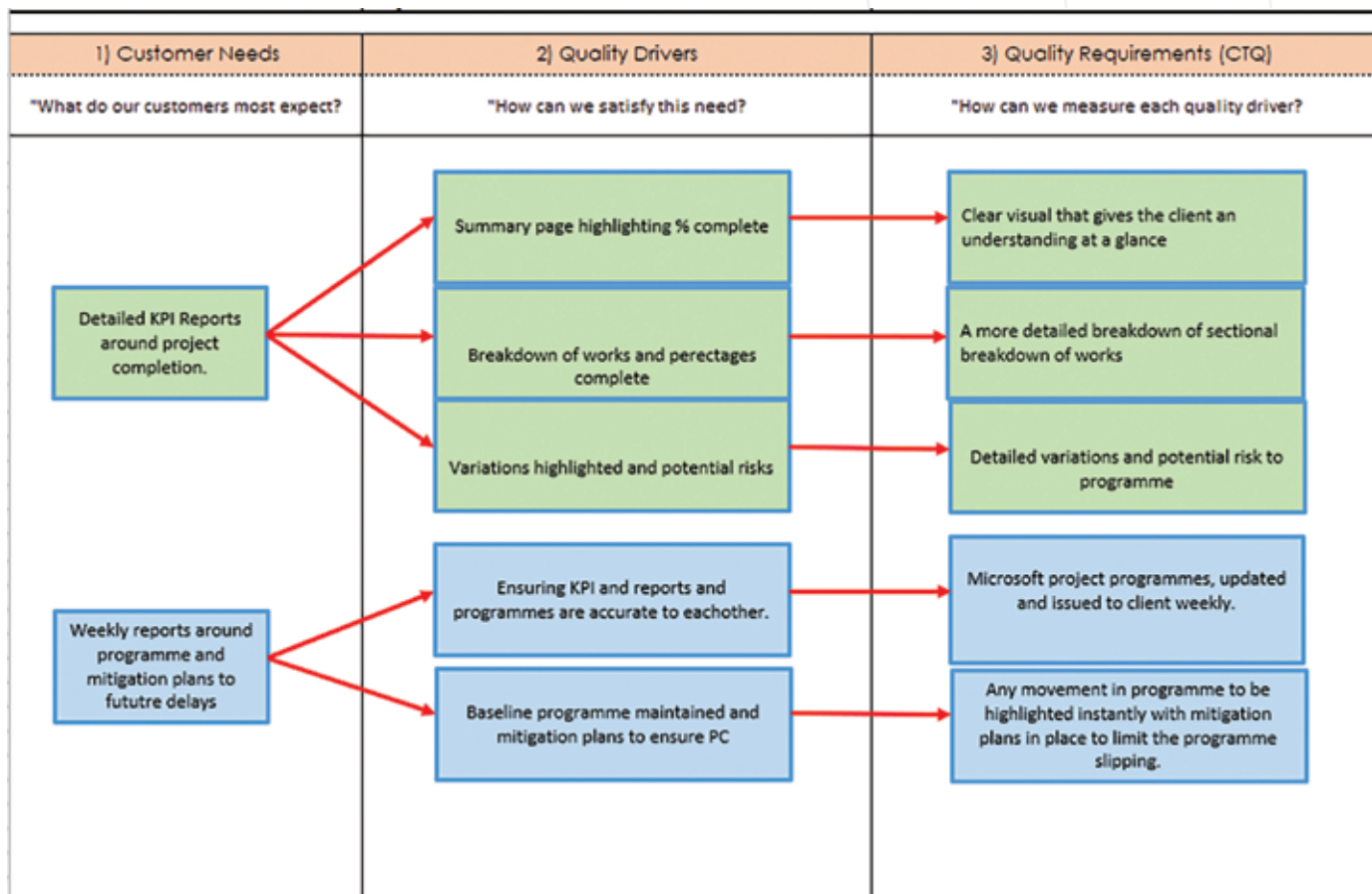


Figure 1: VOC - to - CTQ Tree

VOC is captured early in the Define phase of DMAIC (Define, Measure, Analyse, Improve, Control), ensuring that every improvement effort is anchored in what matters most to our clients. This client-centric approach aligns seamlessly with Lean principles by eliminating waste, minimising non-value-added activities, and preventing rework or overproduction. With VOC at the core of our projects, we deliver higher-quality outcomes, increased process efficiency, and enhanced client satisfaction, consistently and predictably.

Moreover, a deep understanding of VOC helps us prioritise improvement opportunities and align all stakeholders on shared objectives, fostering strong engagement and buy-in. Ultimately, the impact of VOC at Ardmac goes far beyond process metrics; it empowers us to deliver tangible value to our clients, strengthen partnerships, and support sustainable business success. By embedding VOC into every step of our journey, we don't just improve processes, we create meaningful solutions that deliver real results, reinforcing Ardmac's position as a trusted, innovative partner dedicated to excellence.

At Ardmac, we specialise in transforming the VOC into clear CTQ requirements, ensuring that every project delivers exceptional value and meets our clients' highest expectations.

Ardmac's approach to VOC and CTQ.

The VOC-to-CTQ tree above highlights a clear and consistent pattern across our projects. Clients place high value on full transparency, demonstrated by their requests for detailed programme schedules and comprehensive KPI reporting.

KPI reporting and detailed programme schedules have proven highly effective in keeping clients satisfied, informed, and actively engaged throughout the project journey. Early client engagement provides Ardmac with valuable access to the design phase, enabling us to guide and share our expertise in areas that may otherwise be overlooked. By involving clients in the 30/60/90/IFC design review process, we create opportunities for meaningful input at four key stage gates. This approach ensures full transparency, fosters collaboration, and provides clients with a comprehensive understanding of how their project will ultimately be delivered.

Many companies underestimate the true impact that clients can have on their own growth and success. At Ardmac, we believe every project is an opportunity to learn, improve, and deliver even greater value than before. Our philosophy is simple: lessons must be learned, and each project must be better than the last. By providing full transparency to our clients, we have been able to build stronger relationships, grow as a business, and continually enhance our offering.



Figure 2: 30/60/90 IFC Review Process

A core part of our approach is to remove on-site challenges for our clients by addressing them off-site in a controlled, predictable environment. Four years ago, Ardmac achieved a pre-manufactured value (PMV) of 40% off-site. However, to truly deliver on the promise of "true modular," we recognised that clients need fully FAT-tested, ready-for-install solutions. Setting ourselves an ambitious goal, we committed to consistently achieving a PMV greater than 85%.

In 2024 and into 2025, we have consistently achieved, and in some cases surpassed, an 85% Pre-Manufactured Value (PMV). By combining deep client insights with innovation and Lean thinking, we continue to streamline on-site delivery, shorten project timelines, elevate safety standards, and consistently exceed client expectations, further reinforcing Ardmac's reputation as a trusted partner and industry leader in modular, off-site construction solutions.

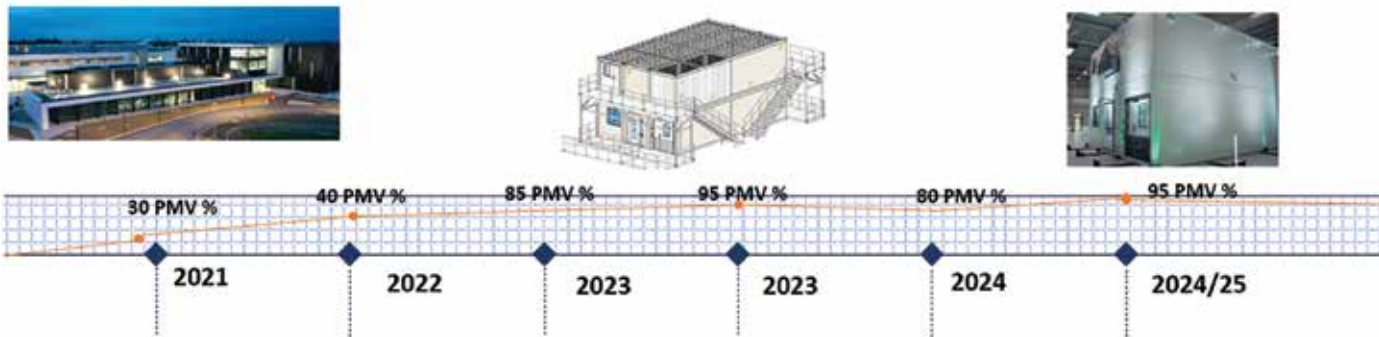


Figure 3: PMV Roadmap.

Lean Initiative Improvements & Impact

At Ardmac, the adoption of Lean principles has been transformative in elevating project delivery, client satisfaction, and operational excellence. Our Lean initiative focuses on maximising value by reducing waste, enhancing quality, and fostering continuous improvement, all centred around the Voice of the Customer (VOC). By deeply understanding our clients' needs and expectations, we've designed and delivered modular solutions that align precisely with their priorities, avoiding unnecessary work and costly rework.

controlled environments has reduced on-site complexity, accelerated schedules, and significantly mitigated safety risks. For clients in highly regulated, time-sensitive industries, these improvements are critical. Off-site manufacturing (OSM) also ensures higher quality consistency, as modules are built to exacting standards, tested prior to delivery, and installed with minimal on-site adjustments.



Figure 4: VOC: Insights for Success

One of the most significant outcomes from our Lean journey has been the dramatic increase in PMV. Four years ago, Ardmac's off-site PMV stood at approximately 40%. Recognising the opportunity to redefine modular construction, we set an ambitious target to consistently exceed 85%. Achieving this milestone required a complete rethink of our processes, closer integration with supply chain partners, and an unwavering focus on quality through Factory Acceptance Testing (FAT).

The impact has been profound. Shifting more activities off-site into

Beyond technical and operational gains, Lean has further strengthened our client relationships. Transparent communication and collaborative delivery ensure that clients feel heard, respected, and actively involved at every stage. This trust translates into stronger long-term partnerships and increased repeat business, a key indicator of our impact. Clients value the predictability and efficiency that Lean processes bring, giving them greater confidence in achieving their own project goals.

Internally, Lean has helped foster a proactive culture of continuous improvement across Ardmac.

Our teams are empowered to identify inefficiencies, suggest enhancements, and deliver innovative solutions. This mindset not only supports productivity but also strengthens employee engagement and pride in delivering best-in-class modular construction solutions.

At Ardmac, the Voice of the Customer is not just heard, it drives everything we do. By translating client insights into actionable requirements and engaging early in the design phase, we co-create solutions that add genuine value. Our structured design review process and commitment to transparency ensure clients remain fully informed and aligned throughout delivery.

In summary, Ardmac's Lean initiative has delivered measurable improvements across all areas, from operational efficiency and safety to quality and client satisfaction. It has solidified our position as a leader in modular, off-site construction and created a strong

foundation for sustainable growth. As we continue to innovate and evolve, Lean thinking remains central to how we deliver excellence and build enduring client partnerships.

Summary and Lessons Learned

Ardmac's Lean journey has reinforced the critical importance of listening, not just to what clients ask for, but to what truly drives value for them. Through the Voice of the Customer (VOC), we've transformed how projects are planned, executed, and continuously improved.

This client-centric approach has enabled us to exceed expectations, reduce waste, and deliver projects that align precisely with client needs, on time, on budget, and to the highest quality standards. The shift to over 85% PMV is a testament to what's possible when Lean principles, innovation, and deep client engagement converge. Off-site manufacturing has become a strategic enabler, allowing us

to reduce on-site complexity, elevate safety, and accelerate delivery. A key lesson learned is that true performance goes beyond metrics. It is about trust, transparency, and partnership. By embedding VOC at the core of every project and engaging clients throughout the design and delivery process, we've fostered stronger relationships and driven sustainable business growth.

Every project is now seen as a learning opportunity. Every project is a chance to do better, deliver more, and evolve. This mindset ensures that we continue to lead the industry in modular, off-site construction, delivering excellence as standard.

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