

What a Well-Governed Core Technology Record Actually Looks Like

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The concept of a core technology record is straightforward enough. The practice is more specific. What does a well-governed record actually look like? What does it contain, how is it maintained, and what does it enable that a collection of project records does not?

This article is a practical account of what good looks like, drawn from ReaDI Watch's work with R&D-active companies across manufacturing, software, industrial automation, and MedTech.

The Technology Definition Layer

A well-governed core technology record starts with a clear, ratified definition of each technology area. Not a broad category, not 'software development' or 'engineering', but a specific, bounded description of what the company is advancing and why it constitutes a distinct area of applied science.

In a precision engineering company, this might be: 'High-tolerance subtractive manufacturing i.e. the development of cutting, grinding, and finishing processes capable of achieving tolerances beyond current industry-standard machine and tooling capability, for application in aerospace and medical device sectors.' That definition is specific enough to draw a boundary around qualifying activity and to distinguish it from standard machining work.

The definition is ratified at leadership level. It is not written by one engineer and left in a file. Leadership should sign off the technology areas annually, confirms they remain current with the company's strategy, and updates them when the technical direction changes. That sign-off is part of the governance record.

The State-of-the-Art Layer

For each technology area, the record contains a state-of-the-art document. This is a structured account of what is currently known and achievable in that technology domain, based on publicly available knowledge and the company's existing capabilities at the time R&D work began.

This document is not written once and left unchanged. It is updated as the company advances the technology. It documents what was the frontier at the start of a project becomes the known baseline by its end. The history of these updates is part of the record: it shows the progression of the company's technical knowledge over time.

In software, the state of the art for a proprietary algorithm area might cover the existing academic and commercial approaches to the problem being solved, their known limitations, and the specific gap the company's work is addressing. In MedTech, it might cover the established biocompatibility testing standards for a materials class, and the specific conditions under which those standards do not apply to the device being developed.

The Investigation and Evidence Layer

Below the state-of-the-art layer sits the investigation record. This is the contemporaneous account of what was attempted, what was tested, what failed, and what was advanced.

A good investigation record is specific and honest. It includes the hypothesis or research question being addressed, the approach taken, the results of experiments or tests, the decisions made and why, and the outcome — whether the investigation achieved its objective, produced unexpected results, or identified a new direction to pursue.

In an industrial automation context, this might be the record of a series of integration tests for a new sensor network, documenting the interface challenges encountered, the approaches tried, and the solution developed. In agri-food, it might be the record of a cultivar trial, from the plant physiology hypothesis through to the growing season results.

The investigation record is not a polished report. It is a working document that must be detailed, specific, and written at the time. That specificity is what makes it credible under audit, and what makes it useful to the next engineer who needs to understand what was tried and why the current approach was chosen.

The Governance and Access Layer

A well-governed record is not just technically complete, it is accessible and maintained. The R&D system owner's role includes ensuring that engineers are connecting their work packages to the right technology areas, that investigation records are being maintained contemporaneously, and that the technology definitions and state-of-the-art documents are kept current.

Access to the record should be structured: engineers can see and contribute to the technology areas relevant to their work; the R&D Board can review the full record for governance purposes; the finance team can access the outputs needed for claim preparation and grant reporting.

When this is working well, the claim preparation process is not a scramble. The technology areas are defined and ratified. The state of the art is documented. The investigation records exist. The connection from work package to technology to advancement is traceable. What remains is consolidation and formatting. Not reconstruction.

ReaDI-Watch is built to support exactly this structure. If you would like to see it in practice, we are happy to walk through what it looks like for a company at a similar stage and sector to yours.
