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PMIS

The Information Infrastructure Behind a Strong Capital Program

How owners can turn project information into better decisions, stronger accountability, and more successful programs

Capital programs do not suffer from a lack of information. They suffer when information is fragmented, inconsistent, difficult to interpret, or disconnected from the decisions owners need to make. A well-designed Project Management Information System, or PMIS, creates the structure that turns project data into useful program intelligence.

> **The goal is not more data. The goal is better decisions.**
>
> *A practical guide for public owners, program managers, project managers, and industry partners.*

RW SOLUTIONS

OWNER'S REPRESENTATIVE + PROGRAM MANAGEMENT

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PMIS FUNDAMENTALS

Start With the Right Definition

The construction industry often talks about PMIS as if it were synonymous with software. It is not.

Software is one component of a PMIS. A complete PMIS combines people, processes, information, governance, and technology into a coordinated management system. That distinction matters because an owner can purchase sophisticated software and still have a poor PMIS.

If information is entered inconsistently, responsibilities are unclear, cost codes do not align, decisions are buried in meeting minutes, reports require hours of manual manipulation, or nobody trusts the data, the technology has not solved the underlying management problem.

Conversely, a thoughtfully structured system built around the owner's actual program can be extremely effective without being unnecessarily complicated.

> **A PMIS is an owner management system first and a software platform second.**
>
> *PMI describes PMIS as the tools and techniques used to gather, integrate, and disseminate project management information across the project lifecycle. [1]*

What should a PMIS actually do?

At its core, a PMIS should help an owner answer a small set of fundamental questions quickly and confidently:

- **What are we building?** Connect every project to its approved scope, program goals, funding source, and relevant commitments.
- **What is it expected to cost?** Distinguish budget, estimate, committed cost, actual cost, forecast, contingency, and remaining program capacity.
- **Are we on schedule?** Make major milestones visible across the program instead of burying them inside individual project schedules.
- **What has changed?** Trace potential changes, approved changes, pending decisions, contingency use, and scope movement.
- **What decisions are needed?** Surface decisions before they become delays.
- **Where are the risks?** Expose emerging financial, schedule, procurement, operational, safety, regulatory, and stakeholder risks.
- **Are we meeting our obligations?** Support procurement, contract, labor compliance, reporting, approval, and recordkeeping workflows.
- **What does leadership need to know?** Translate detailed project data into meaningful owner-level information.

When those questions require several spreadsheets, multiple emails, institutional knowledge, and several people to reconcile the answer, the PMIS is not doing enough.

OWNER LENS

Build the System Around Decisions, Not Data

One of the most common PMIS mistakes is beginning with the question: What information can we track? Almost anything can be tracked.

The better question is: What decisions does the owner need to make, and what information is necessary to make those decisions well?

A project manager may need detailed information about an individual change event. A program manager needs to understand how all pending changes affect contingency. A finance team may need expenditure projections. An executive may need to understand whether the overall program remains financially healthy. A board may need an even higher-level view of budget, schedule, progress, commitments, and significant risks.

These are different views of the same underlying program. A strong PMIS captures information once whenever practical and allows that information to serve multiple purposes. This reduces duplicate entry, conflicting reports, and the familiar problem of several spreadsheets containing slightly different versions of the truth.

Five principles that should guide PMIS design

1	**Owner-first**	Configure around the owner's decisions, responsibilities, reporting needs, and operating environment.
2	**One source of truth**	Define where authoritative information lives and reduce duplicate tracking wherever practical.
3	**Connected information**	Link scope, cost, schedule, contracts, changes, risks, decisions, and reporting so impacts are visible.
4	**Clear governance**	Assign data ownership, definitions, update frequency, review responsibility, and escalation thresholds.
5	**Sustainable by the owner**	Document and train the system so institutional knowledge remains after individual team members leave.

Capture information once. Use it many times.

A change event should not live only as a PDF in a folder. Its impact should flow into commitments, forecast, contingency, the change log, and reporting.

INFORMATION ARCHITECTURE

The Core Components of a Strong PMIS

Every program is different, but several information areas consistently form the backbone of effective capital program management. The goal is not to create a separate tool for every function. The goal is to make sure the information is structured and connected.

Project & Scope Management What is included, how each project connects to program commitments, and whether scope is changing.	**Budget & Cost Management** Original budget, current budget, commitments, expenditures, forecast, contingency, and anticipated final cost.
Schedule Management Major milestones, critical dependencies, procurement timelines, occupancy dates, and areas requiring intervention.	**Procurement Tracking** Procurement method, approvals, advertisement, solicitation, evaluation, award, protests, contracting, and notice to proceed.
Contract Management Contract values, amendments, insurance, bonds, expiration dates, authorized services, and remaining contract capacity.	**Change Management** Potential changes, pricing status, responsibility, approvals, contingency impact, and executed changes.
Risk & Issue Management Identified risks, probability, impact, mitigation, ownership, status, and escalation.	**Decision Management** Decisions required, responsible party, deadline, supporting information, outcome, and record of approval.
Invoice & Cash Flow Management Current expenditures, invoice status, future cash needs, spend-down projections, and funding alignment.	**Document Control & Executive Reporting** File standards, version control, approvals, record retention, program health, trends, forecasts, upcoming decisions, and risks.

Connection is the real value

A change order should not exist only as a PDF in a contract folder. Its value should also affect the contract commitment, project forecast, contingency balance, change log, and executive reporting. That connection is what turns information storage into program management.

PROJECT CONTROLS

Cost and Schedule: Where PMIS Design Has Immediate Impact

Cost management deserves special attention

A project can appear to be within budget while carrying significant pending exposure that has not yet reached the accounting system. For that reason, owners should avoid managing programs solely from actual expenditures.

A strong financial structure typically distinguishes between the following concepts:

- Approved budget
- Current budget
- Original commitments
- Approved contract changes
- Current commitments
- Actual expenditures
- Pending or probable changes
- Forecasted future costs
- Contingency
- Anticipated final cost

The exact terminology can vary by organization. Consistency is more important than using a particular label. What matters is that leadership can see both where the program has been and where it is expected to land.

> **Accounting records transactions. A PMIS helps manage the decisions that occur before those transactions reach accounting.**

Program-level schedule management is different from contractor scheduling

Contractor schedules are important, but they serve a different purpose. An owner's program schedule should connect activities across the entire lifecycle, including planning, design, community engagement, permitting, procurement, construction, furniture and equipment, technology, move-in, occupancy, closeout, and warranty.

It should also show dependencies between projects. This becomes especially important for school districts and public agencies where operational dates may be immovable. The first day of school, seasonal construction windows, elections, grant deadlines, funding requirements, board approvals, or facility moves can create constraints that extend far beyond a contractor's critical path.

A program-level PMIS should help leadership see those connections early enough to act.

OREGON PUBLIC CONTRACTING

Public Owners Need More Than Project Tracking

For public agencies, PMIS design should consider the regulatory and administrative environment in which the work is delivered. In Oregon, the Public Contracting Code includes ORS Chapters 279A, 279B, and 279C, together with applicable Oregon Administrative Rules and agency-specific authority. Oregon DAS identifies these statutes and rules as core sources governing public procurement and contracting. [3]

Oregon law defines public contracting broadly to include procurement activities related to obtaining, modifying, or administering public contracts or price agreements. [4] In practical terms, compliance does not stop at award. Contract administration is part of the public contracting lifecycle.

YOUR PMIS SHOULD SUPPORT ORS AND OAR REQUIREMENTS

The system should help the owner perform, document, and retrieve required processes. It should not be treated as a substitute for legal or compliance judgment.

Depending on the agency and procurement, useful PMIS workflows may include procurement authority, solicitation milestones, approvals, contract execution, amendments, insurance, bonds, first-tier subcontractor disclosures when applicable, protests, and required records.

Public works add another layer. Oregon BOLI administers prevailing wage requirements for covered public works, and its guidance includes payroll and reporting requirements that may affect owner and contractor workflows. [5]

Support compliance without pretending to be compliance

The applicable ORS, OAR, local rules, funding requirements, contract provisions, and owner policies should first be identified by qualified professionals. The PMIS can then support those requirements through reminders, approvals, required fields, workflow gates, documentation, and reporting.

This is one reason an off-the-shelf construction template is rarely enough by itself for a public owner. The system needs to understand the owner.

Educational note: This paper is not legal advice. Owners should confirm current procurement, contracting, labor, funding, and recordkeeping requirements with qualified professionals and current source materials.

GOVERNANCE AND REPORTING

Good Dashboards Start With Good Data

Dashboards are often the most visible part of a PMIS, but they are one of the last things that should be designed. An attractive dashboard built on inconsistent data is simply a faster way to display unreliable information.

Before building executive graphics, owners should establish five things:

Data ownership	Who is responsible for maintaining each piece of information?
Definitions	What do terms such as forecast, committed, complete, or at risk mean?
Update frequency	Which information is updated continuously, weekly, monthly, or at specific milestones?
Governance	Who reviews the information before it becomes an official program report?
Escalation	What conditions require additional attention or leadership action?

> **Dashboards should highlight what requires a decision, not everything that can be measured.**

Automate administration without automating judgment

Automation can significantly improve PMIS performance. Notifications can identify overdue actions. Workflows can route approvals. Reports can update automatically. Forms can standardize data collection. Dashboards can aggregate information across dozens of projects.

But automation should be applied intentionally. Automating a poorly defined process simply makes the poor process move faster.

A strong PMIS uses technology to reduce low-value administrative effort so the program team can spend more time evaluating information, resolving problems, communicating with stakeholders, and managing risk. Human judgment remains essential.

The U.S. Government Accountability Office has long emphasized the importance of reliable data and information systems for sound capital planning and decision-making. [2] The technology matters, but the management discipline around the information matters just as much.

WHAT TO WATCH FOR

The Most Common PMIS Failure Points

Most PMIS problems are not technology problems. They are management problems expressed through technology.

Too much complexity	The system demands more effort to maintain than the value it returns.
No clear data owner	Everyone assumes someone else is responsible for keeping information current.
Duplicate systems	Different teams track the same information in separate tools and reports.
Manual reconciliation	Monthly reporting requires days of spreadsheet collection, formula checks, phone calls, and rework.
Reporting disconnected from workflows	Dashboards are built separately from the processes that create the underlying information.
One-person dependency	Only the person who built the system understands how it works.

A PMIS should strengthen the owner

The owner should never become dependent on a consultant simply because the consultant controls the program information. Owners should understand where their information resides, how it is organized, how reports are produced, and how the system can be maintained over time.

That means providing appropriate access, documenting workflows, defining standards, training owner staff, and planning for long-term ownership of the information. This is particularly important for multi-year bond programs where consultants, contractors, designers, staff members, and leadership may change during the life of the program.

> **Institutional knowledge should live in the system and its documented processes, not solely in the person who built it.**

How much PMIS does your program need?

Not every capital program needs an enterprise platform. Technology should be proportional to complexity. A district managing three straightforward projects may need a very different system than an agency managing a multi-year bond program with dozens of projects, multiple project managers, several design teams, numerous contractors, multiple funding sources, and extensive public reporting.

Program size matters, but so do the number of users, procurement complexity, funding sources, reporting expectations, internal owner capacity, geographic distribution, regulatory requirements, program duration, document volume, and the need to integrate with finance or other systems.

A smaller system that people consistently use is more valuable than a sophisticated platform that people work around.

PRACTICAL EVALUATION

Questions Owners Should Ask Before Building or Rebuilding a PMIS

Before selecting software, ask questions that expose the real management need. These questions are often more valuable than beginning with a software demonstration.

1. What decisions are difficult to make today because information is unavailable or fragmented?
2. What questions does leadership ask repeatedly?
3. Where are project teams maintaining duplicate information?
4. Which processes consume the most administrative time?
5. What information is most difficult to reconcile at month-end?
6. What regulatory, contractual, procurement, or funding requirements need to be supported?
7. Who owns each category of program information?
8. What should a project manager see that an executive does not need to see?
9. What information needs to survive beyond the current project team?
10. Can the owner operate and understand the system without the person who created it?

> **If the problem has not been clearly defined, software selection is premature.**
>
> *Start with the owner's decisions, workflows, responsibilities, and information gaps.*

CLOSING PERSPECTIVE

The Measure of a Good PMIS

The success of a PMIS should not be measured by the number of dashboards, automations, or features it contains. It should be measured by what the system allows the owner to do.

- Can leadership understand program health quickly?
- Can project managers identify issues before they become larger problems?
- Can financial forecasts be trusted?
- Can decisions be traced?
- Can changes be connected to their budget and schedule consequences?
- Can procurement and contract requirements be monitored?
- Can the owner explain how public funds are being managed?
- Can a new team member understand the program without reconstructing years of institutional knowledge?
- Can the system evolve as the program evolves?

If the answer is yes, the PMIS is doing its job.

> **A capital program is ultimately a series of interconnected decisions. The PMIS is the infrastructure that connects those decisions to reliable information.**

When designed around the owner, a PMIS creates more than efficiency. It creates visibility. It improves accountability. It strengthens financial and schedule management. It preserves institutional knowledge. It supports compliance. It allows teams to identify risks earlier and communicate more clearly.

Most importantly, it gives owners the information they need to lead their programs with confidence.

RW Solutions perspective

At RW Solutions, we believe program management systems should be built around the owner, not around a software product. The best PMIS reflects how the organization makes decisions, supports its regulatory and operational responsibilities, provides meaningful visibility into the program, and leaves the owner with stronger systems and better information than they started with.

Technology is a tool. The value comes from how thoughtfully it is applied.

LEADING BOND PROGRAMS WITH PURPOSE

www.rwsolutionspm.com | info@rwsolutionspm.com

REFERENCES

Sources and Further Reading

1. **Project Management Institute**
   Project Management Information Systems Overviews. PMI Learning Library.
   https://www.pmi.org/learning/library/project-management-information-systems-overviews-5813

2. **U.S. Government Accountability Office**
   Executive Guide: Leading Practices in Capital Decision-Making. GAO/AIMD-99-32.
   https://www.gao.gov/products/aimd-99-32

3. **Oregon Department of Administrative Services**
   State Procurement Services - Oregon Law. Public Contracting Code and Oregon Administrative Rules.
   https://www.oregon.gov/das/procurement/pages/authlaw.aspx

4. **Oregon Legislative Assembly**
   ORS Chapter 279A. Public Contracting - General Provisions. See definitions of public contracting and the Public Contracting Code.
   https://www.oregonlegislature.gov/bills_laws/ors/ors279a.html

5. **Oregon Bureau of Labor and Industries**
   Prevailing Wage guidance for Oregon public works.
   https://www.oregon.gov/boli/employers/pages/prevailing-wage.aspx

> ## Use current source materials.
>
> *Procurement rules, administrative rules, labor requirements, and agency procedures can change. Confirm requirements for each project and procurement.*

About this resource

This white paper is intended as an educational resource for owners, program managers, project managers, and industry partners. It is not a substitute for project-specific legal, procurement, accounting, information technology, labor compliance, or other professional advice.

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