

# Using DataDrill EXPRESS to Support CMMI Level Three

---

As organizations start planning to achieve CMMI Level 3, they face a number of decisions and challenges:

- How do we show compliance with the activities and tasks for measurement required by the CMMI?
- How do we create a central management and measurement policy, but tailor it for different parts of the organization?
- What measures and indicators are used by other companies who have done the same thing?
- Is it possible to create a measurement system that allows us to satisfy Level 3 and also sets the stage for Levels 4 and 5?

This white paper describes how DataDrill EXPRESS has been designed to specifically address the needs of organizations operating at CMMI Level 3. DataDrill EXPRESS, unlike any other commercial solution, provides automation for every Measurement & Analysis (M&A) task in the CMMI, in a way that makes this essential business practice achievable for all organizations. In addition, it contains a library of measurement best practices that allows organizations to benefit from the experience of leading organizations world-wide.

DataDrill EXPRESS is the easiest and most cost-effective way to satisfy the measurement needs of CMMI Level 3. It requires less effort than spreadsheets, databases and other in-house solutions. And, it provides a valuable best practice library of information needs and measures proven at CMMI Levels 2 through 5.

*DataDrill EXPRESS, unlike any other commercial solution, provides automation for every Measurement & Analysis task in the CMMI, in a way that makes this essential business practice achievable for all organizations*

This white paper provides an overview of the CMMI's M&A process area, and then recommends measures which comply with CMMI Level 2 and 3, both in terms of process elements (i.e., "what must be done") and management evidence (i.e., "what reports and graphs must be used"). The intended audience is software managers, process group members and measurement leads who are assessing DataDrill EXPRESS or investigating how to satisfy the requirements of CMMI Level 3.

## DataDrill EXPRESS Overview

DataDrill EXPRESS enables an organization to implement a measurement process based on identified information needs and makes possible the delivery of that information to knowledge workers - senior executives to technical managers to developers and staff - in a way that supports decision-making and risk management and improves overall program management.

Specifically, DataDrill EXPRESS addresses four primary challenges encountered when satisfying the M&A requirements of the CMMI:

- 1) Support all measurement tasks identified in the M&A process area
- 2) Provide a set of information needs to satisfy managing technical processes
- 3) Allow tailoring to accommodate organization-specific measurement or management practices
- 4) Provide a method to track CMMI compliance without additional effort

DataDrill EXPRESS assists any-sized organization in implementing a measurement program to manage systems, software and IT developments as well as support process evaluations such as CMMI, ISO and others. For more detailed information on DataDrill EXPRESS, please consult the Distributive Management web site at [www.distributive.com](http://www.distributive.com) for videos, white papers, presentations and other information about products, services and training.

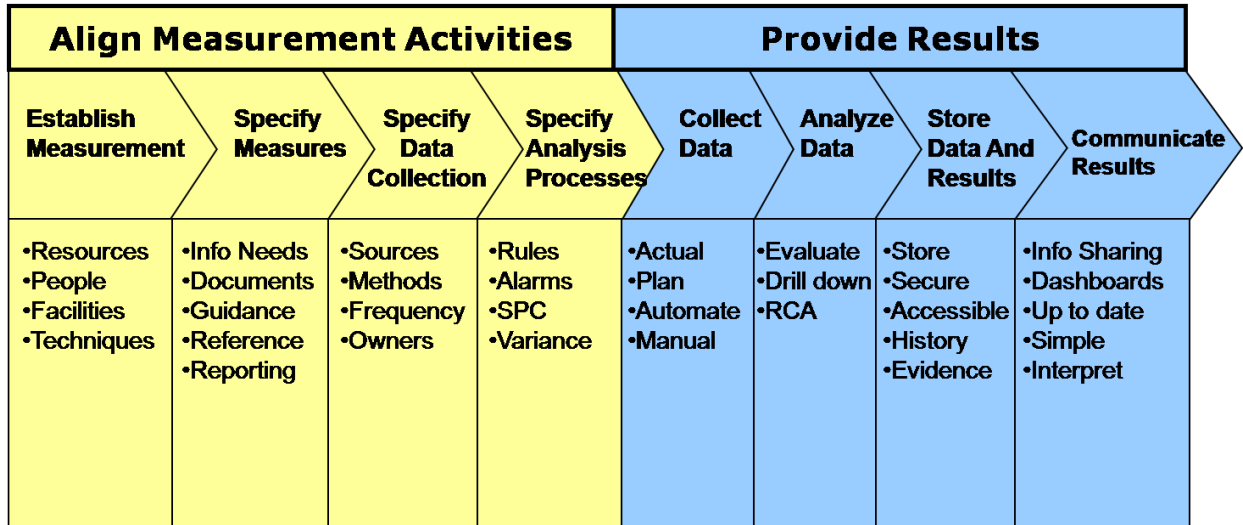
## CMMI Overview

In the CMMI, Measurement & Analysis is the process area that supports the planning and management of other essential process areas. Software managers use measurement and analysis to enter and establish plans, to review the progress of actual performance against the plan, and finally to take management action to identify and resolve issues of poor process or product performance, as well as to track CMMI compliance itself.

This measurement process is the mechanism that organizations use to provide the information that managers need to manage the way that the organization requires them to. Another way to look at it is this: An organization establishes management policy that managers are expected to follow. As part of that policy, managers are required to review status information and then perform specific management tasks based on the status information. The measurement process is the mechanism by which the organization delivers the status information to managers.

## Supporting the Measurement & Analysis Practice

The CMMI M&A practice is separated into two activities, Align Measurement and Provide Results, as shown in the following diagram.



DataDrill EXPRESS, unlike any other commercial solution, provides automation for every task in these activities, allowing the entire measurement and analysis process area to be deployed and tailored quickly.

From the initial installation of DataDrill EXPRESS, your organization is able to immediately start implementing the measurements your managers need with full compliance to the CMMI.

## Supporting CMMI Level 2 Measurement Needs

In CMMI Level 2, the focus is on demonstrating defined and repeatable processes. In practice, this is usually interpreted as “project” level process and associated measurement. That is, CMMI Level 2 focuses on the individual projects and programs, and not organizational tailoring, optimization and improvement. DataDrill EXPRESS contains extensive features to deploy a consistent set of measures across any number of projects, as required to comply with CMMI Level 2.

In the following table, we show how the best-practice information needs built into DataDrill EXPRESS support the measurement needs of CMMI Level 2 process areas.

These can be tailored, if desired, but can easily be used out of the box to initiate a world-class measurement process. (A glossary of process areas and their abbreviations is located at the end of this document.)

<b>Information Need</b>	<b>CMMI Dimension</b>						
	<b>RM</b>	<b>PP</b>	<b>PMC</b>	<b>MA</b>	<b>PPQA</b>	<b>CM</b>	<b>SAM</b>
Requirements Progress	X	X	X				X
Requirements Stability	X	X	X				X
Schedule Accuracy		X	X				X
Schedule Loading		X	X				X
Cost		X	X		X	X	X
Software Size			X		X	X	
Software Configuration Management					X	X	
Test Case Development	X		X				X
Risk Management		X	X		X		X
Defect Productivity			X		X		X
Defect Quality			X		X		X
Defect Schedule			X				X
Enhancement Productivity	X	X	X				
Enhancement Quality	X	X	X				X
Enhancement Schedule	X	X	X				

For more detailed information on the measurement process within CMMI Level 2, please consult the Distributive Management white paper, *Measurement for Maturity and Process Improvement Using DataDrill EXPRESS*, available at [www.distributive.com](http://www.distributive.com).

## Supporting CMMI Level 3 Measurement Needs

CMMI Level 3 includes several more process areas than Level 2, of which, from a measurement perspective, the most significant is Organizational Tailoring. At CMMI Level 3, the measurement process must empower the organization to tailor measurement across different organizational units or programs. To support organizational tailoring, DataDrill EXPRESS provides template and instantiation features that allow the organization to create and deploy tailored sets of measures.

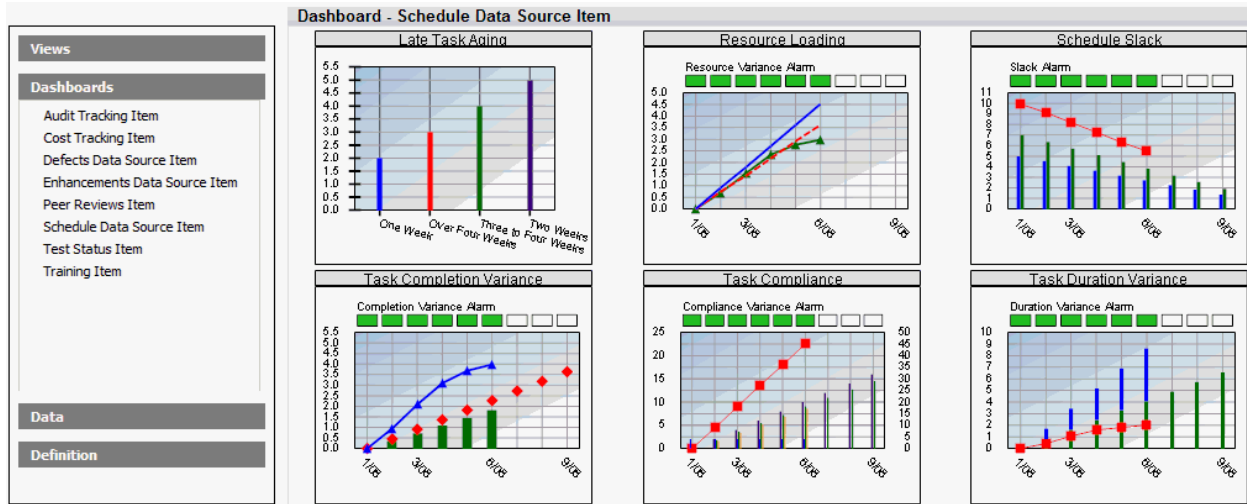
The following table describes additional measures that are included in DataDrill EXPRESS specifically to support CMMI Level 3.

<i>Information Need</i>	<i>CMMI Dimension</i>										
	<i>IPM</i>	<i>RD</i>	<i>OPD</i>	<i>OPF</i>	<i>OT</i>	<i>VER</i>	<i>VAL</i>	<i>RSKM</i>	<i>DAR</i>	<i>TS*</i>	<i>PI</i>
Cost Tracking	X		X	X	X					X	X
Peer Review Status						X	X		X	X	
Test Status						X	X				
Enhancement Requests	X						X		X		X
Defect Status	X					X			X		X
Requirements Progress		X								X	X
Requirements Volatility		X								X	X
Project Scheduling	X		X	X		X	X			X	X
Training					X						
Audit Tracking			X							X	
Risk Management								X	X	X	

\* - The Technical Solution (TS) process area (which depends on specific architecture and design processes) can use information needs either as-is from the library, or tailored to provide evidence of progress in the TS process area. Both options are fully support by EXPRESS.

Information needs in this table can also support process areas in CMMI Level 2 – see the previous table for that mapping.

EXPRESS provides dashboards with graphic representation of measures and status for each process area, as seen in the example that follows.



## Process Improvement Compliance Tracking

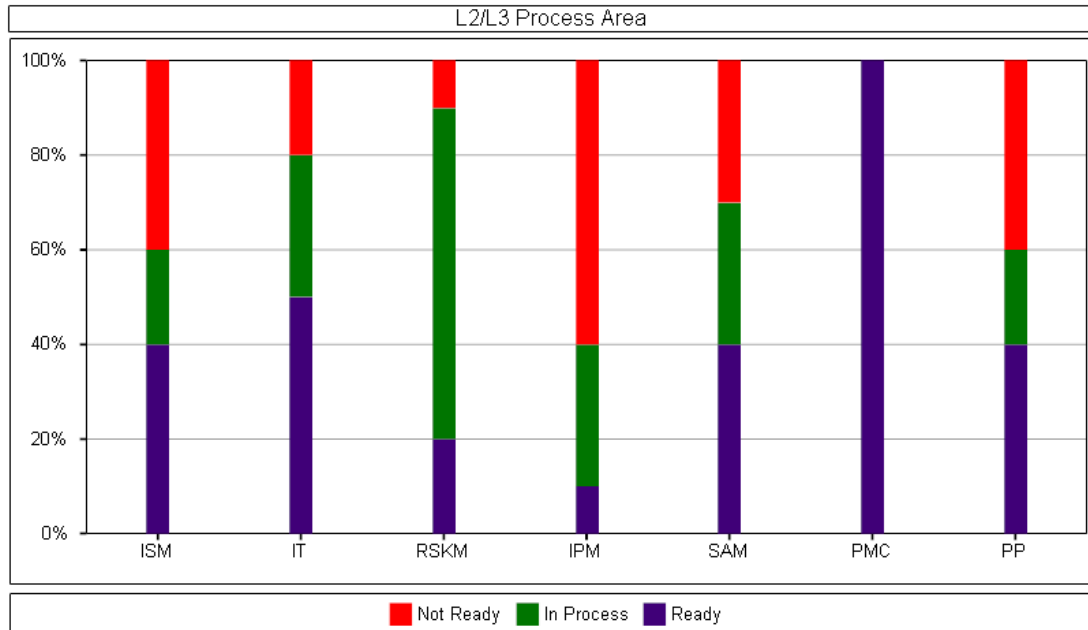
Organizations should treat their CMMI and process improvement initiatives like a project – initiatives are committed, planned, performed and managed like any other type of product or program. Essentially, the CMMI initiatives are treated as a process improvement product to be managed. In this light, the measurement process, since it can measure any process, should be used to monitor the status and progress of the CMMI initiatives themselves.

One key aspect of measuring progress on these types of initiatives is to have a set of indicators that compare current and improved performance to a previous baseline. For the CMMI initiative, the measurement process should quantify information needs for executives and process improvement leads, such as the following included in the EXPRESS Library:

- Process Improvement Readiness
- Process Improvement Capabilities
- Process Improvement Progress

EXPRESS supports tracking process improvement initiatives in similar fashion to its other process area tracking.

A few examples are shown in the screenshots below which communicate status and progress against CMMI initiative goals.



Dimension	Element	Status
CMMI Dev Level 3	Decision Analysis and Resolution	●
	Integrated Project Management	●
	Organizational Process Definition	●
	Organizational Process Focus	●
	Organizational Training	●
	Product Integration	●
	Technical Solution	●
	Validation	●
	Verification	●
	Dashboard Categories	Productivity
Quality		●
Schedule		○
Software CMMI Maturity Level 2	Process & Product Quality Assurance	●
	Project Monitoring & Control	○
	Project Planning	●
	Supplier Agreement Management	●

As an organization repeats the process improvement cycle, additional information needs could be added to focus on success factors and best practices that have been shown to lead to effective improvement.

## Summary

DataDrill EXPRESS is the easiest and most cost-effective way to satisfy the measurement needs of CMMI Levels 2 and 3. It requires less effort than spreadsheets, databases and other in-house solutions.

EXPRESS is an off-the-shelf measurement solution that directly addresses the challenges of the CMMI Measurement & Analysis process area for CMMI Level 3. DataDrill EXPRESS supports CMMI Level 3 in these essential areas:

- automates the activities and tasks of the CMMI Measurement & Analysis process area
- provides a best-practice library of CMMI Level 2 and Level 3 information needs and measures
- enables tailoring and configuration of measurement
- supports CMMI Level 4 and 5 measurement needs

For more information, please contact Distributive Management through the following:

### **Distributive Management**

800-779-6306

[sales@distributive.com](mailto:sales@distributive.com)

<http://www.distributive.com>

109 Olde Greenwich Drive, Suite 102

Fredericksburg, Virginia 22408

To read about the CMMI Development current version, please consult the *CMMI for Development Version 1.2, Technical Report*, available on SEI's site at

<http://www.sei.cmu.edu/publications/documents/06.reports/06tr008.html>.

## Glossary of CMMI Process Areas

### **CMMI Level 2**

CM – Configuration Management

MA – Measurement and Analysis

PMC – Project Monitoring and Control

PP – Project Planning

PPQA – Process and Product Quality

RM – Requirements Management

SAM – Supplier Agreement Management

### **CMMI Level 3**

DAR – Decision Analysis and Resolution

IPM – Integrated Project Management

OPD – Organizational Process Definition

OPF – Organizational Process Focus

OT – Organizational Training

PI – Product Integration

RD – Requirements Development

RSKM – Risk Management

TS – Technical Solution

VAL – Validation

VER – Verification