




1

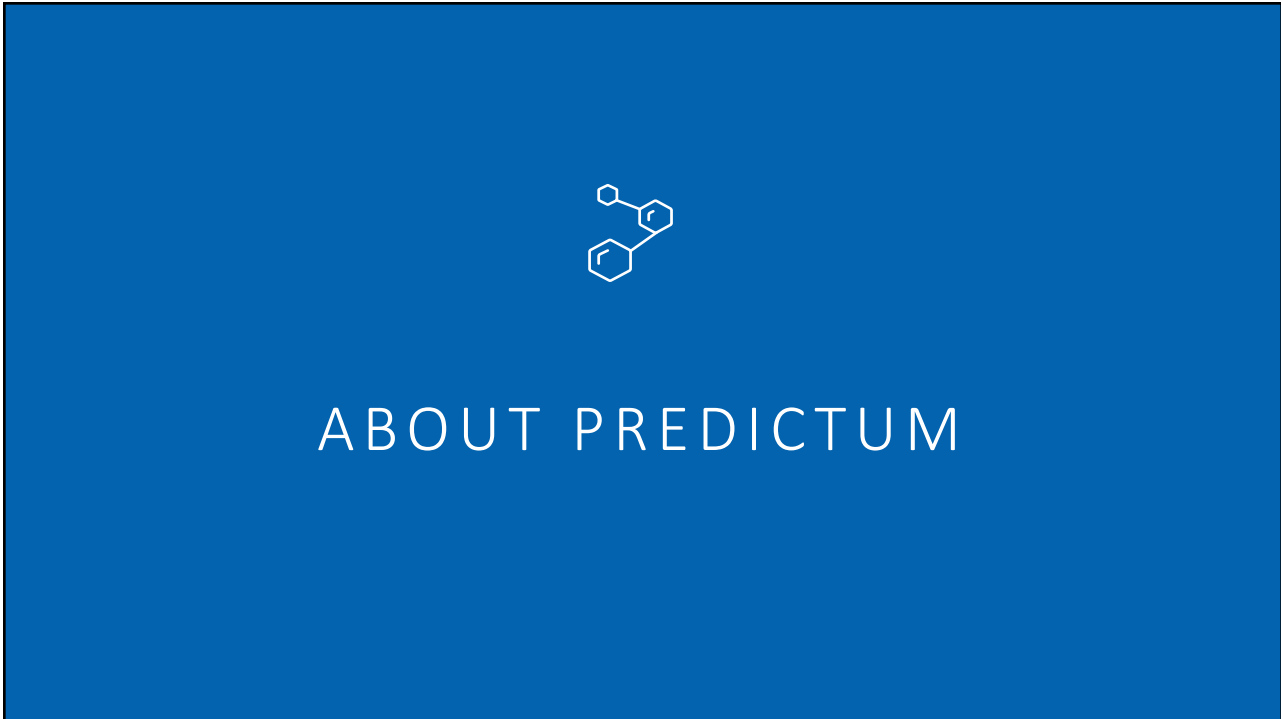
Agenda



1. Introduction to Predictum Inc.
2. Our Mission
3. How to Improve Productivity in Science & Engineering


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Mission



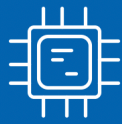
- We accelerate problem solving, improvement and R&D
- Through
 - Analytical training and consulting
 - Integrated analytical systems



- Launched in March 1992

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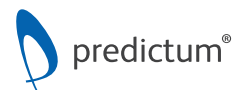
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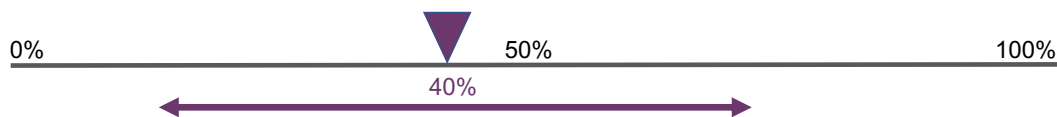
How managing knowledge (not just data) as an asset will dramatically improve productivity among researchers, engineers and business analysts.

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Question



- How often does someone regenerate what was already known?



- Regenerating what was already known
 - Imposes higher risks
 - Costs \$
 - Delays objectives
 - Lost opportunity to accelerate problem solving, improvement and R&D

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“ _____ ” Happens!



- Customer Issue
- Production Problem
- Obstacles causing delays in new product or process development & characterization
- How do you respond if the right people ...
 - ... cannot be identified?
 - ... are simply not available?
 - ... have retired, are away, have been reassigned or simply leave?

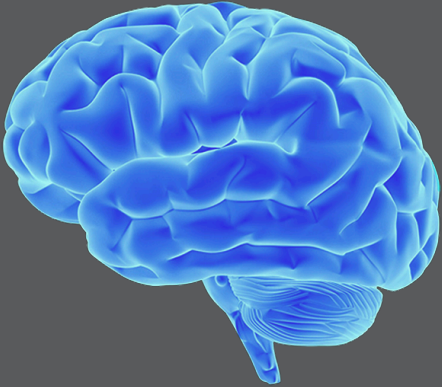
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Companies typically manage their materials and spare parts better than their knowledge.


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The brain is a great knowledge creator ...
but a lousy knowledge container


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Knowledge cannot accumulate if the brain is the primary storage device.

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Always Accumulate Knowledge!

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What is knowledge?

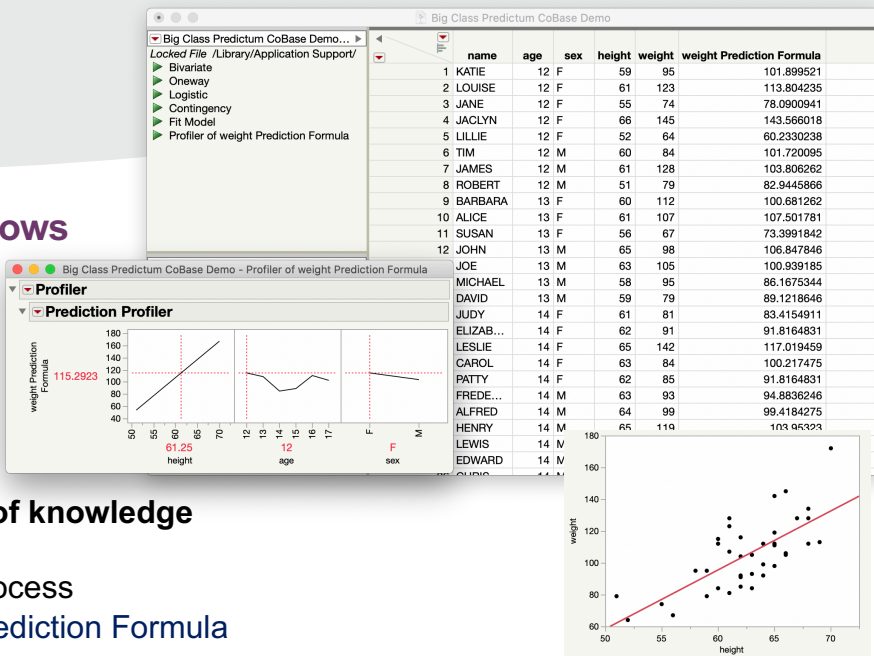
Knowledge is what allows us to predict.

$$y = f(x)$$

Related Components of knowledge

- 1) Data
- 2) Analytical Method/Process
- 3) Predictive Model / Prediction Formula

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	name	age	sex	height	weight	weight Prediction Formula
1	KATIE	12	F	59	95	101.899521
2	LOUISE	12	F	61	123	113.804235
3	JANE	12	F	55	74	78.0900941
4	JACLYN	12	F	66	145	143.566018
5	LILLIE	12	F	52	64	60.2330238
6	TIM	12	M	60	84	101.720095
7	JAMES	12	M	61	128	103.806262
8	ROBERT	12	M	51	79	82.9445866
9	BARBARA	13	F	60	112	100.681262
10	ALICE	13	F	61	107	107.501781
11	SUSAN	13	F	56	67	73.3991842
12	JOHN	13	M	65	98	106.847846
	JOE	13	M	63	105	100.939185
	MICHAEL	13	M	58	95	86.1675344
	DAVID	13	M	59	79	89.1218646
	JUDY	14	F	61	81	83.4154911
	ELIZAB...	14	F	62	91	91.8164831
	LESLIE	14	F	65	142	117.019459
	CAROL	14	F	63	84	100.217475
	PATTY	14	F	62	85	91.8164831
	FREDE...	14	M	63	93	94.8836246
	ALFRED	14	M	64	99	99.4184275
	HENRY	14	M	65	119	103.95323
	LEWIS	14	M			
	EDWARD	14	M			

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Productivity in Engineering & Science

Analysts collect and analyze data (conduct research) to meet customer needs, solve problems and realize improvement.

To enhance their own productivity, they typically record information on spreadsheets (and JMP data tables) ...

... and conduct their own analyses and write their own reports

This is why it's called:
Personal Computing



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R&D Process



- One big problem is that these initiatives are isolated
- Researchers cannot easily access the experience of their colleagues



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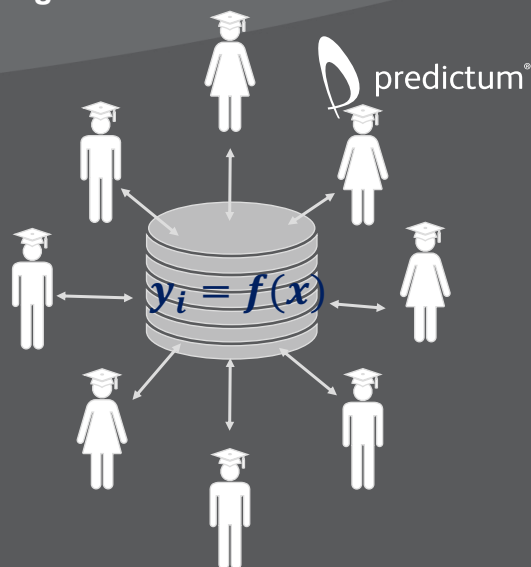
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R&D Process, Improvement & Problem Solving

What would be gained if each researcher could readily and easily store their work? And retrieve and view the work of others?

Benefits:

- New initiatives do not start from zero
- Instead, they start with the knowledge that others have contributed
- Never unknowingly pay for the same insights more than once
- Compare others' experiences, identify inconsistencies, gain confidence from consistencies
- Reconcile inconsistencies

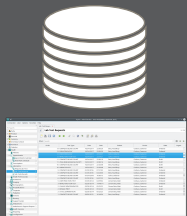


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Capture, Preserve & Reuse Knowledge

Databases
LIMS



Preserve Data

CoBase™



Preserves knowledge
creation work

Document
Management
Systems

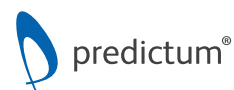


Preserve Reports &
Documents

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Managing Knowledge like an Asset

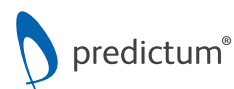


- Managing Knowledge as an **Asset** requires that Knowledge be bundled (with data & reports) & packaged
 - Identifiable, so that it can be ...
 - Searchable, so that it can be ...
 - Retrievable, so that it can be ...
 - Reused
 - Referenced
 - Challenged
 - Improved
 - Secure
 - Your knowledge (data, analyses, predictive models) stay under your control

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Knowledge Management Applications



SashLAB™

Virtual Lab or Digital Twin

Manage recipes & predictive models

Fully vet experiments before the delay and cost of physical experimentation

Fully consider proposed operational changes

Explicit expression of institutional knowledge by way of models

Both capture explicit knowledge, development method and their underlying data and make them available for re-use by others. **Avoid delays, costs and anxiety associated with searching for or regenerating knowledge.**

CoBase™

Everyday research and experimentation, Improvement initiatives, formal and informal

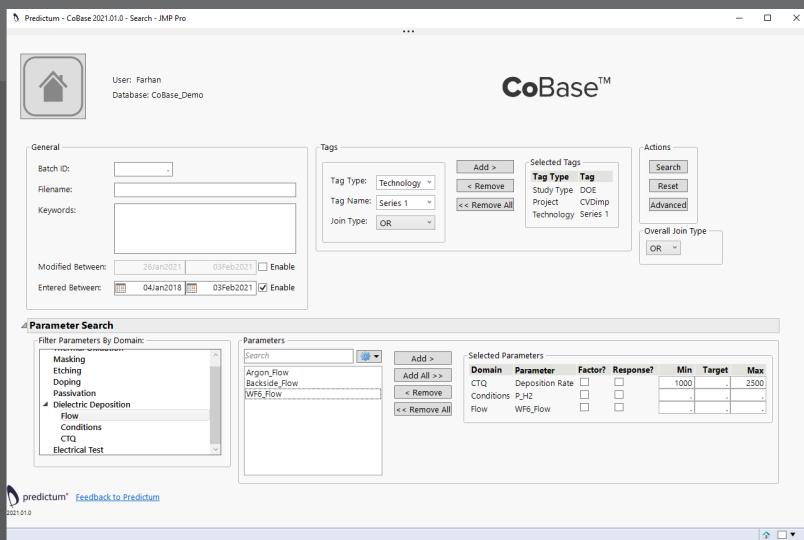
Database of experiments tagged and indexed by factors, responses and domain information

Anyone can look up the knowledge generated by others

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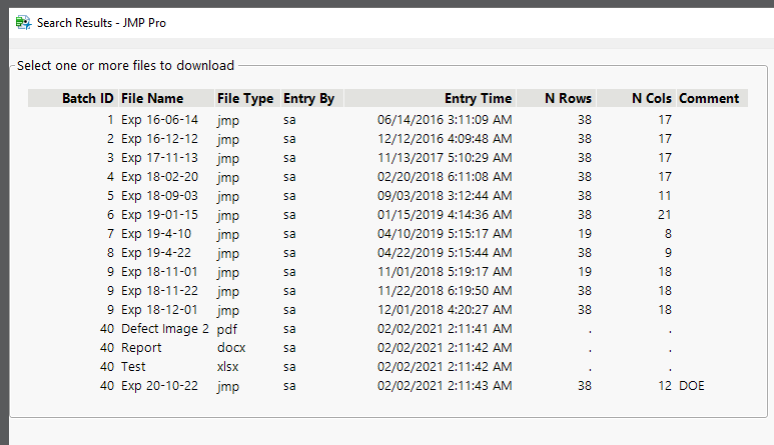
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Search Interface



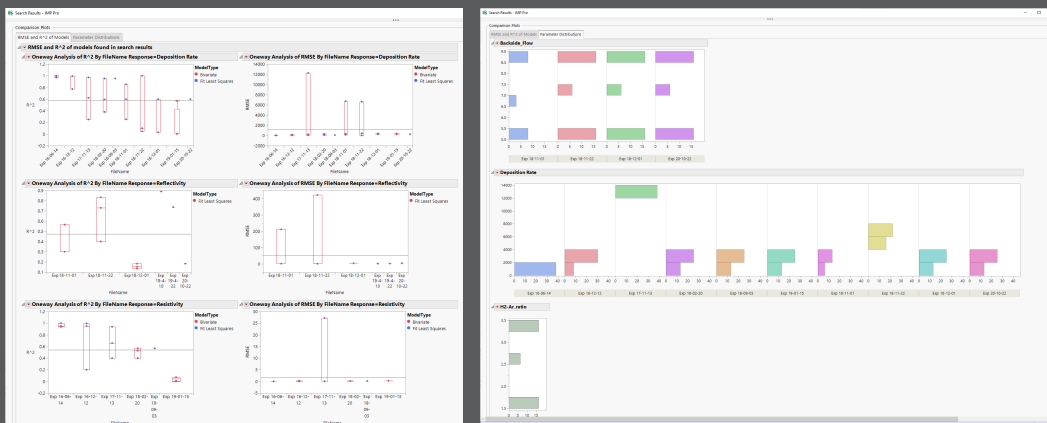
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Search Results



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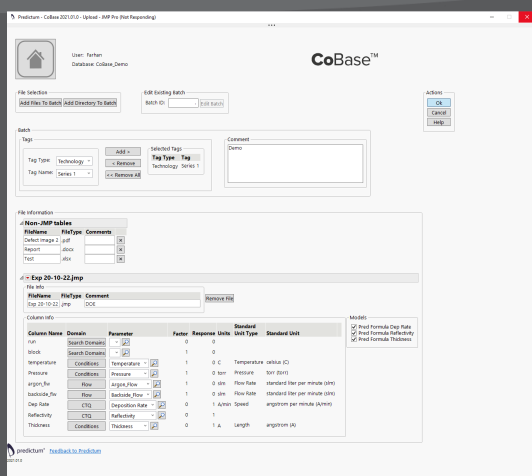
Search Results: Information at a Glance



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Uploading Knowledge to CoBase

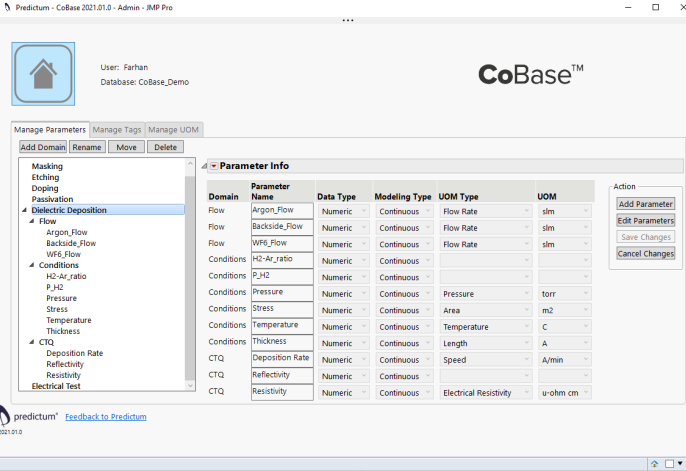


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- CoBase searches and automatically assigns standard names for factor & response columns
- Easy to name/rename columns to conform to standards
- Units of Measure, adjust according to standards.
- Upload related files
- Add additional tags to facilitate searching

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Admin Panel



CoBase™

User: Farhan
Database: CoBase_Demo

Manage Parameters | Manage Tags | Manage UOM

Add Domain | Rename | Move | Delete

Parameter Info

Domain	Parameter	Data Type	Modeling Type	UOM Type	UOM	Action
Flow	Argon_Flow	Numeric	Continuous	Flow Rate	slm	Add Parameter Edit Parameters Save Changes Cancel Changes
Flow	Backside_Flow	Numeric	Continuous	Flow Rate	slm	
Flow	WF6_Flow	Numeric	Continuous	Flow Rate	slm	
Conditions	H2-Ar_ratio	Numeric	Continuous			
Conditions	P_H2	Numeric	Continuous			
Conditions	Pressure	Numeric	Continuous	Pressure	torr	
Conditions	Stress	Numeric	Continuous	Area	m2	
Conditions	Temperature	Numeric	Continuous	Temperature	C	
Conditions	Thickness	Numeric	Continuous	Length	A	
CTQ	Deposition Rate	Numeric	Continuous	Speed	A/min	
CTQ	Reflectivity	Numeric	Continuous			
CTQ	Resistivity	Numeric	Continuous	Electrical Resistivity	uohm cm	

predictum® Feedback to Predictum
2021.01.0

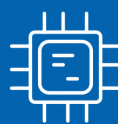
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- Set up and group standard names for factors, responses, domains (eg. Production steps or product sub-components)
- Set up standard Units of Measurement
- Establish Tags

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predictum®



Do you want to learn more about eliminating knowledge waste?
Arrange a discussion about how CoBase™ can fit into your organization.

Contact: Austin@predictum.com

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