

# Dimensional Data for Piping

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## History

- 1997 – One of the key requirements by Brown & Root to replace operational ICP legacy system
- 1997-1998 – Developing specification and software
- 1999 – In production in KBR
- 2001 – Agreement on commercial use and sale of DDP
- 2002 – PDS integration and delivery as a product
- 2003 – Integrated with SP3D

# Dimensional Data for Piping

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## Why instrument data in the model?

- Instrumentation is the most voluminous design discipline
- Traditionally secondary to piping and equipment
- Not always adequately presented in the 3-D physical design space
- Volumes of instruments and level of detail required
- With detailed instrument data the path is simplification for the sake of cost reduction

# Dimensional Data for Piping

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## Instruments and physical space

- Are instrument's physical dimensions important? Yes
  - It may not work
  - Can't be installed
- Does physical design data exist? Yes
  - Detailed design
  - Vendor documentation

# Dimensional Data for Piping – Drivers (1/3)

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## Key drivers in design

Reduces piping design man-hours by:

- Reducing man-hours - inputting dimensional data
- Reduction of checking time.
- Reduces dimensional data errors.



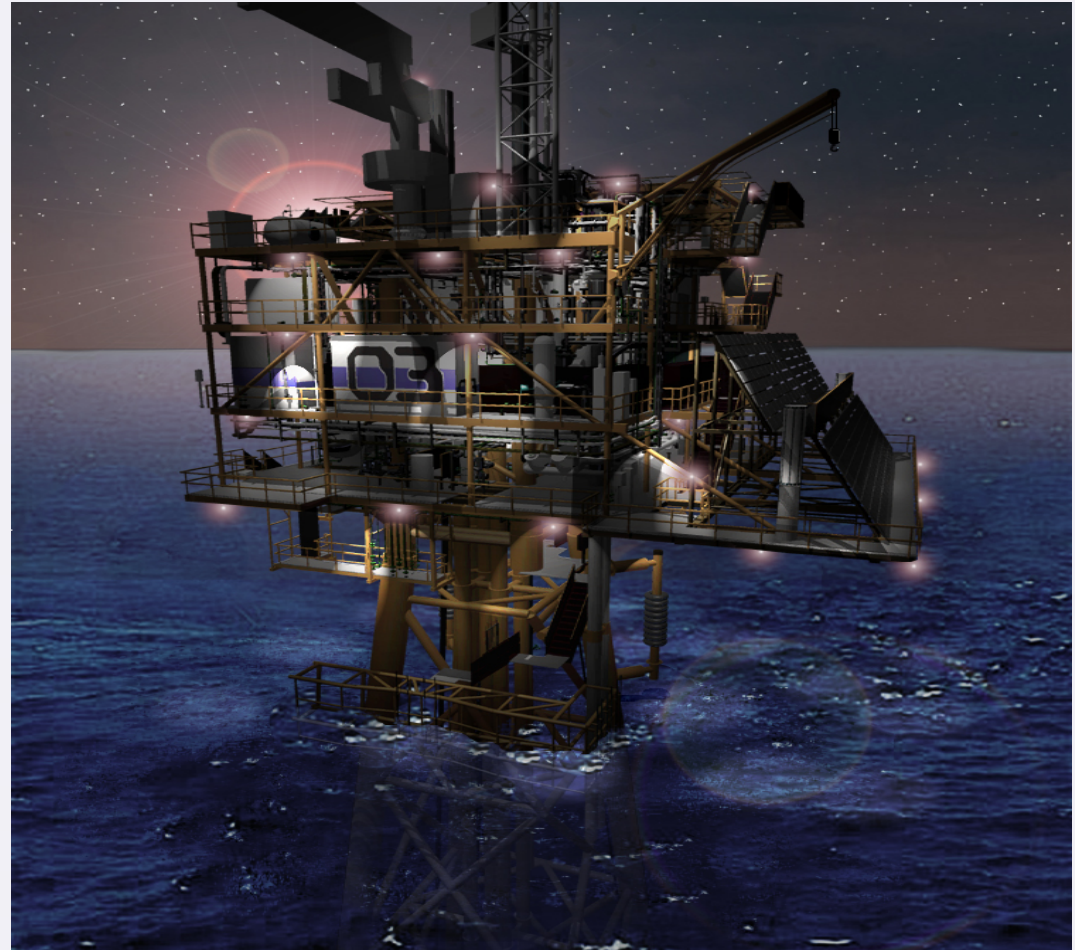
# Dimensional Data for Piping – Drivers (2/3)

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## Key drivers in construction

Reduces construction costs by:

- Design data matching with delivered equipment
- Minimize risk of installation space clashes
- Minimize risk of unsuitable equipment shipped



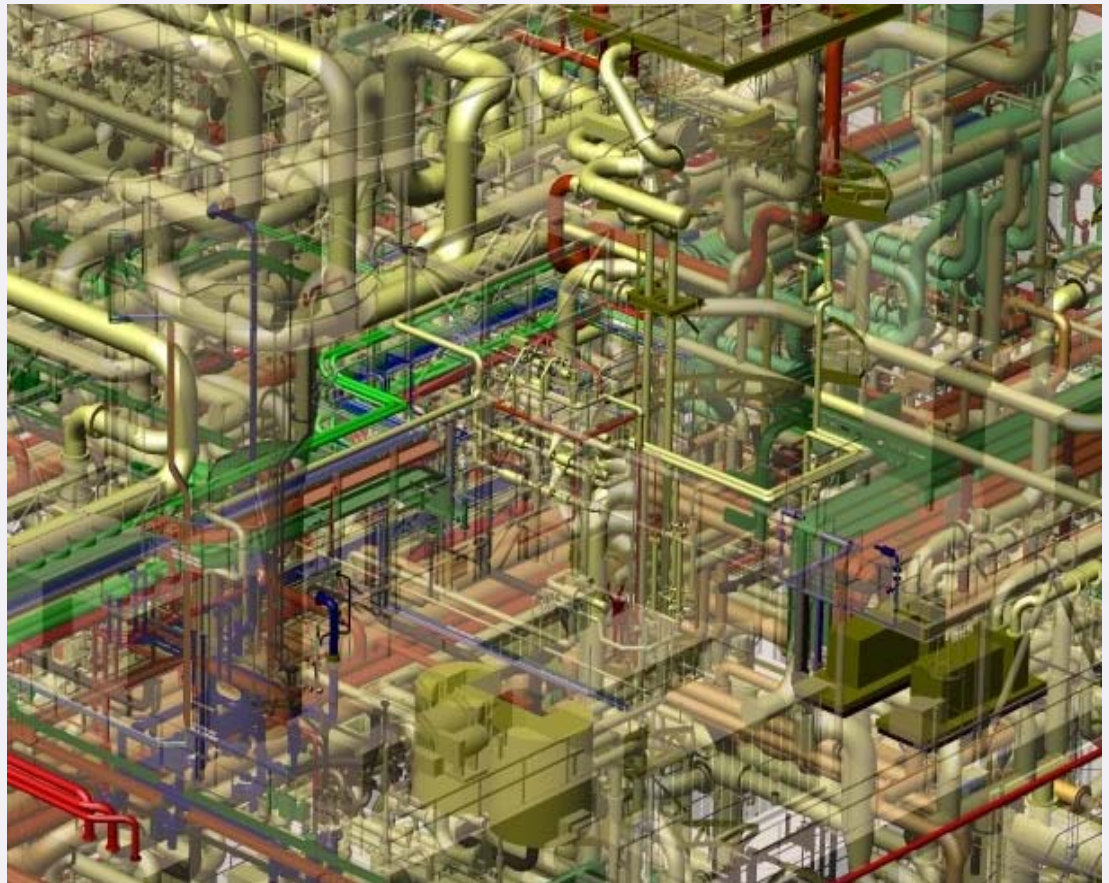
# Dimensional Data for Piping – Drivers (3/3)

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## Key drivers in manufacturing

Reduces manufacturing costs by:

- Using CAD independent data
- Improving quality of delivered data
- Speeding up order processing



# Vendor supplied Dimensional Data for Piping (1/4)

## Fisher Specification Manager

The screenshot displays the Fisher Specification Manager software interface. The window title is "Fisher® Specification Manager". The menu bar includes "File", "Edit", "Profile", "Contacts", "View", and "Help". The toolbar contains various icons for file operations and navigation. The left sidebar shows a project tree with "MyProjects" and "Project1" containing sub-projects "101-FV -100", "101-FV -2212", and "101-FV -2213". The main area is titled "ISA Sheet" and contains a grid of specification fields. The tabs at the top of the main area are "1-Installation Data:", "2-Valve Sizing", "3-Valve Selection", "4-Valve Construction", "5-Actuator Selection", "6-Positioner", and "7-Additional Accessories".

18	Max Press Temp:	50bar(g)/250deg C	59	Min. Req'd Press:	33.00psig
19	Mfg. /Model:	Fisher/ET	60	Available Air Supply Pressure	
20	Body Bonnet Matl:		61	Max:	Min:
21	Liner Matl/ID:	By Mfr	62	Bench Range:	10.00psig-30.54psig
22	End Connection In:	1 1/2 Inch CL300 RF Flg	63	Act Orientation:	By Mfr
23	End Connection Out:	1 1/2 Inch CL300 RF Flg	64	Hand/Wheel Type:	By Mfr
24	Flg Face Finish:	By Mfr	65	Air Failure Valve:	Set at: psi-g
25	End Ext/ Matl:		66		
26	Flow Direction:	Flow Down	67	Input Signal:	4-20 mA dc
27	Bonnet Type:	Plain	68	Positioner Type:	Electro-Pneumatic
28	Lub-ISO-Valve:	No	69	Mfg./Model:	Fisher/DVCG000/PD
29	Packing Material:	Single PTFE	70	Positioner Action:	Direct
30	Packing Type:	V-Ring:Spring Type	71	Gauges:	Yes By-Pass Yes
31			72	Cam Characteristic:	Linear
32	Trim Type:	Trim Number1	73	DVC: On-Line Diagnostics	
33	Size:	1 7/8 Inch Travel: 3/4 Inch		SWITCHES	
34	Characteristic:	Equal Percent	74	Type:	Qty:
35	Balanced/Unbalanced:	Balanced	75	Mfg./Model:	/
36	Rated Cv:	Fl: 0.84 Xt: 0.78	76	Contacts/Rating:	no
37	Material:	S41600 (416 SST)	77	Actuation Points:	
38	Seat Material:	S41600 (416 SST)	78		
39	Cage:	CB7Cu-1 (17-4 PH SST)		AIRSET	
40	Stem Material:	S31600 (316 SST)	79	Mfg./Model:	Fisher/67CFR
41			80	Set Pressure:	35 psig
42			81	Filter:	Gauges:
43	Special Access		82		
44	NEC Class:	Group: Div:	83	TESTS Hydro Press:	
45			84	ANSI/FCI Leak Class	ANSI CL IV
			85		

# Vendor supplied Dimensional Data for Piping (2/4)

## Report from Fisher Specification Manager

The image shows a Microsoft Word document containing a technical drawing of a valve assembly. The drawing includes two views: a front view on the left and a side view on the right. Dimensions are provided in inches. Key dimensions include: 13.13 (total width), 13.6 (total width), 11.38 (width of the valve body), 7.44 (width of the valve stem), 9.19 (height of the valve stem), 18.81 (height of the valve body), 8.3 (height of the valve stem), 4.91 (height of the valve body), 2.81 (height of the valve stem), 4.63 (width of the valve stem), 9.25 (width of the valve body), 7.91 (width of the valve stem), 10.23 (height of the valve body), and 0 (height of the valve stem). The drawing is labeled with 'AR', 'S', 'CP1', and 'CP2'. A data table is located at the bottom right of the drawing area.

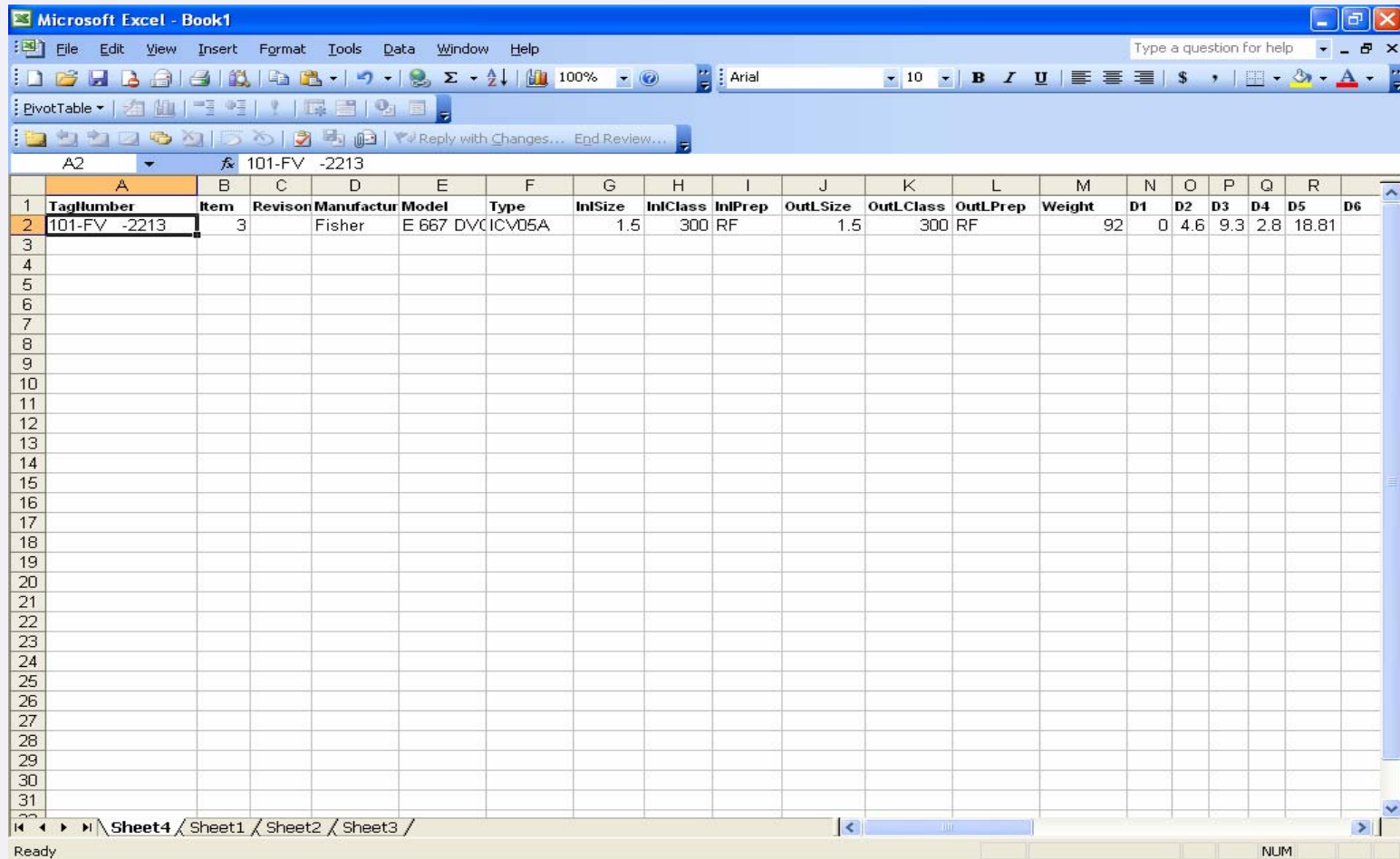
Dimensions certified correctly by:		Date:
Customer:		
Customer Reference Number:		
Project:		
Tag Number:	101-FV -2213	
Revision:		

1 1/2 Inch C L300 Fisher 65T ET-DVC6000/P D

DDP Code: ICV05A

# Vendor supplied Dimensional Data for Piping (3/4)

## Data export – ready to import into SPI



The screenshot shows a Microsoft Excel spreadsheet with a table of piping data. The table has 17 columns and 31 rows. The first row is a header, and the second row contains data for a specific piping item. The rest of the rows are empty.

1	TagNumber	Item	Revision	Manufactur	Model	Type	InSize	InClass	InPrep	OutLSize	OutLClass	OutLPrep	Weight	D1	D2	D3	D4	D5	D6	
2	101-FV	-2213	3	Fisher	E 667 DVC	ICV05A	1.5	300	RF	1.5	300	RF	92	0	4.6	9.3	2.8	18.81		
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# Vendor supplied Dimensional Data for Piping (4/4)

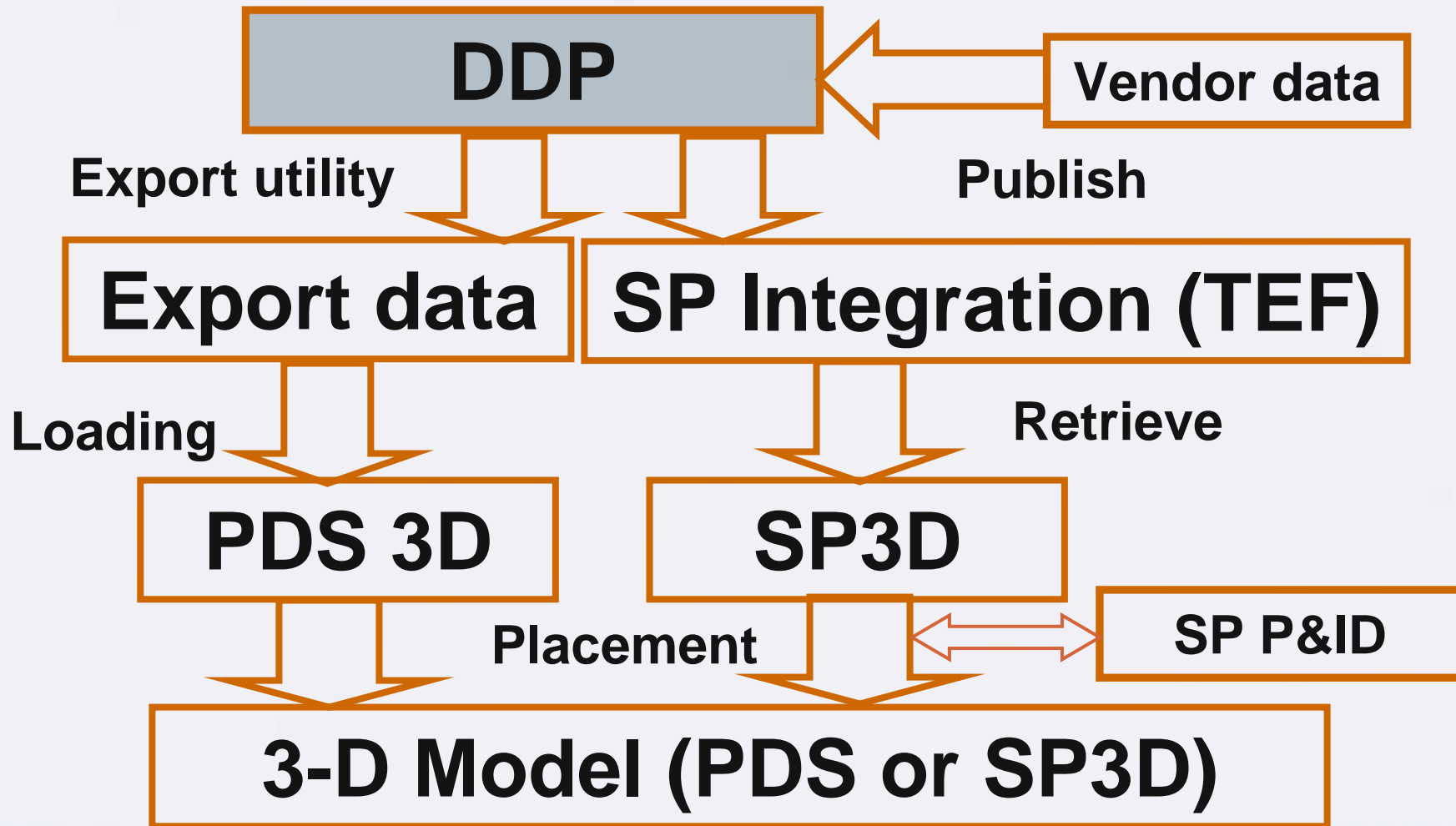
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## Other vendors

- Dresser provides dimensional data on demand
- Would like to include the DDP interface in the next integration generation
- Masoneilan have expressed interest
- Can be part of the integral vendor data supply cycle initiatives in the future

# Dimensional Data flow (1/2)

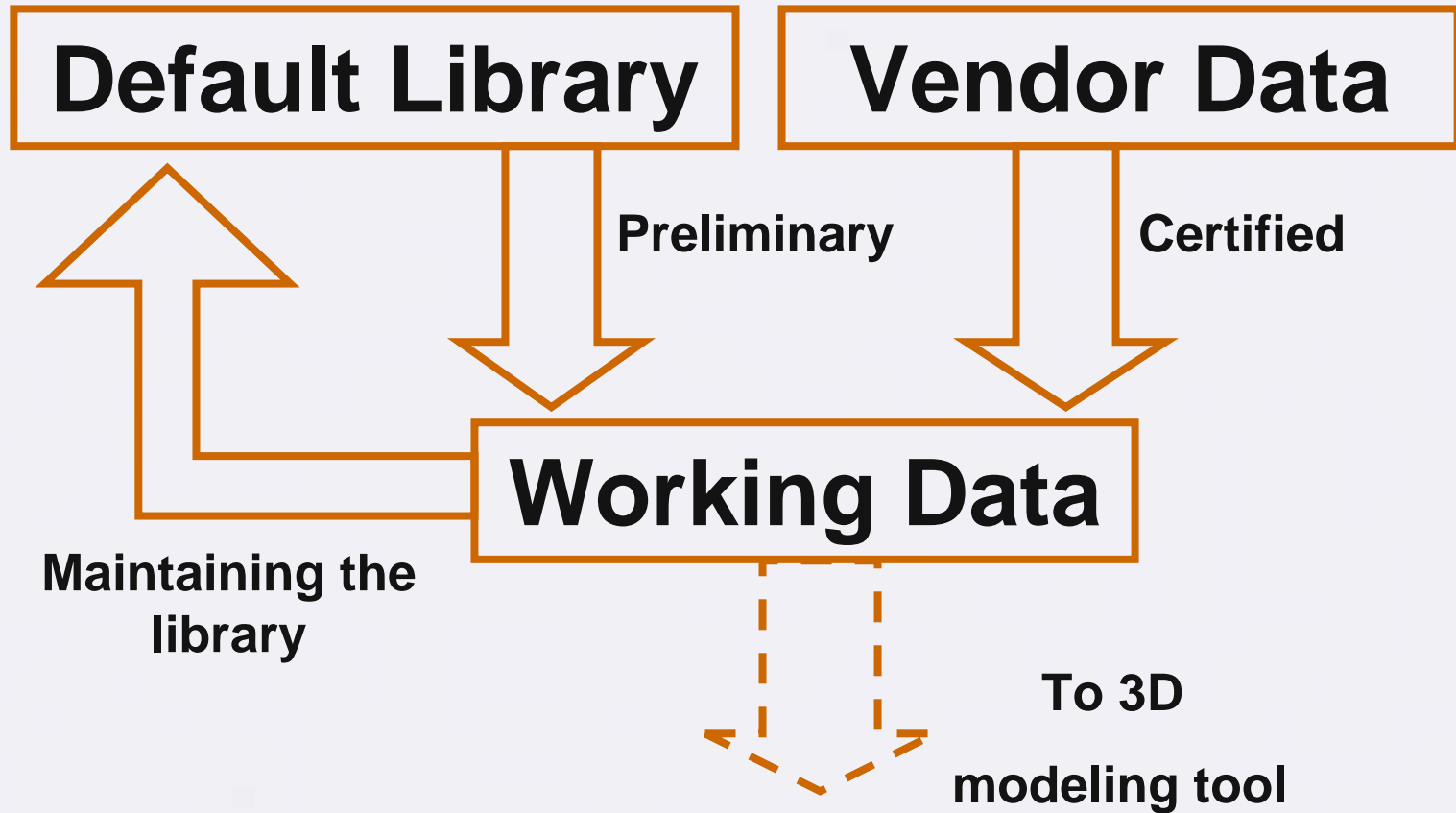
## Inter-application workflow



## Dimensional Data flow (2/2)

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### Intra-application workflow



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# Presentation of the integrated DDP workflow with SP3D