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Integrating Dynamic Simulation to data repositories for faster capital projects

Presented by: Angel Ojeda

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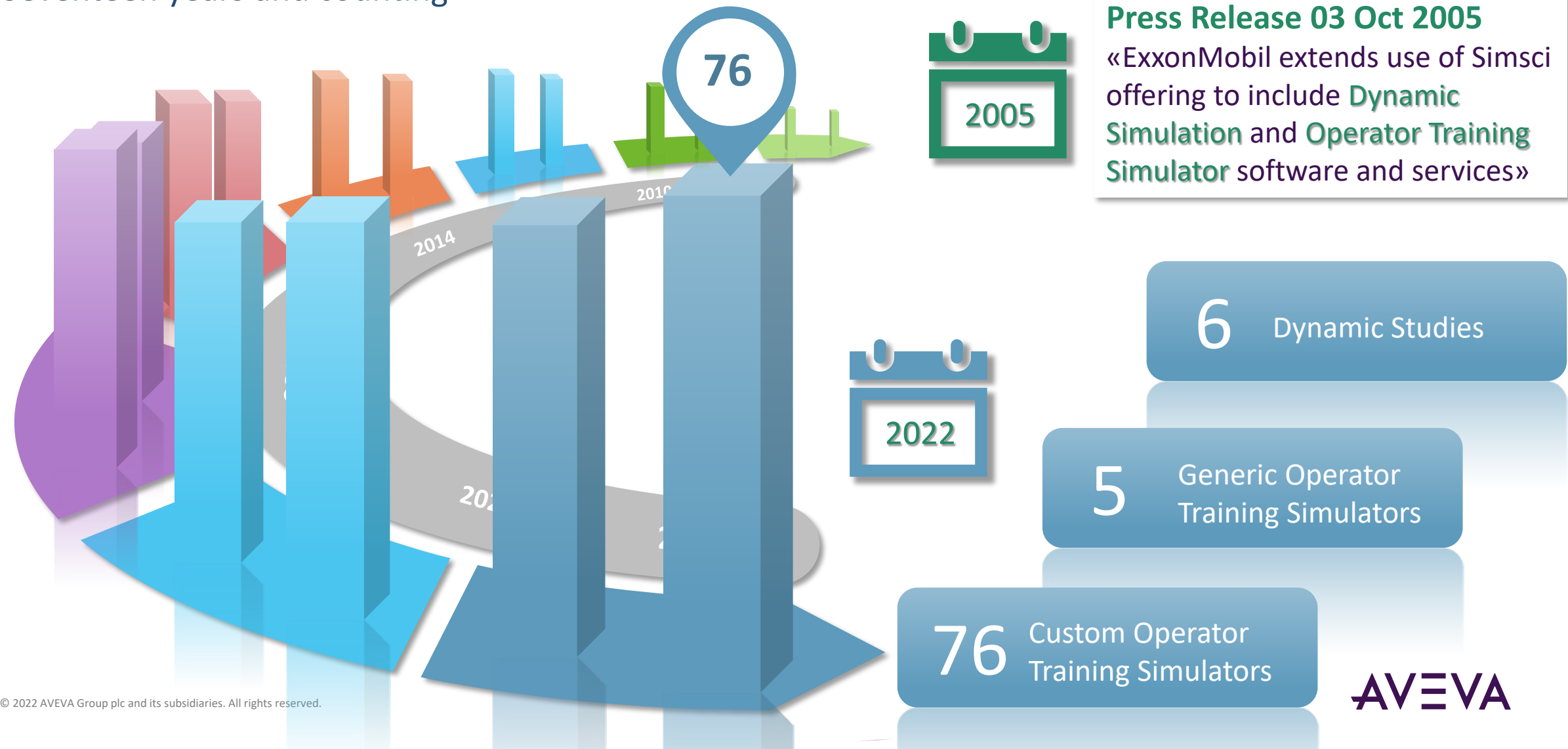
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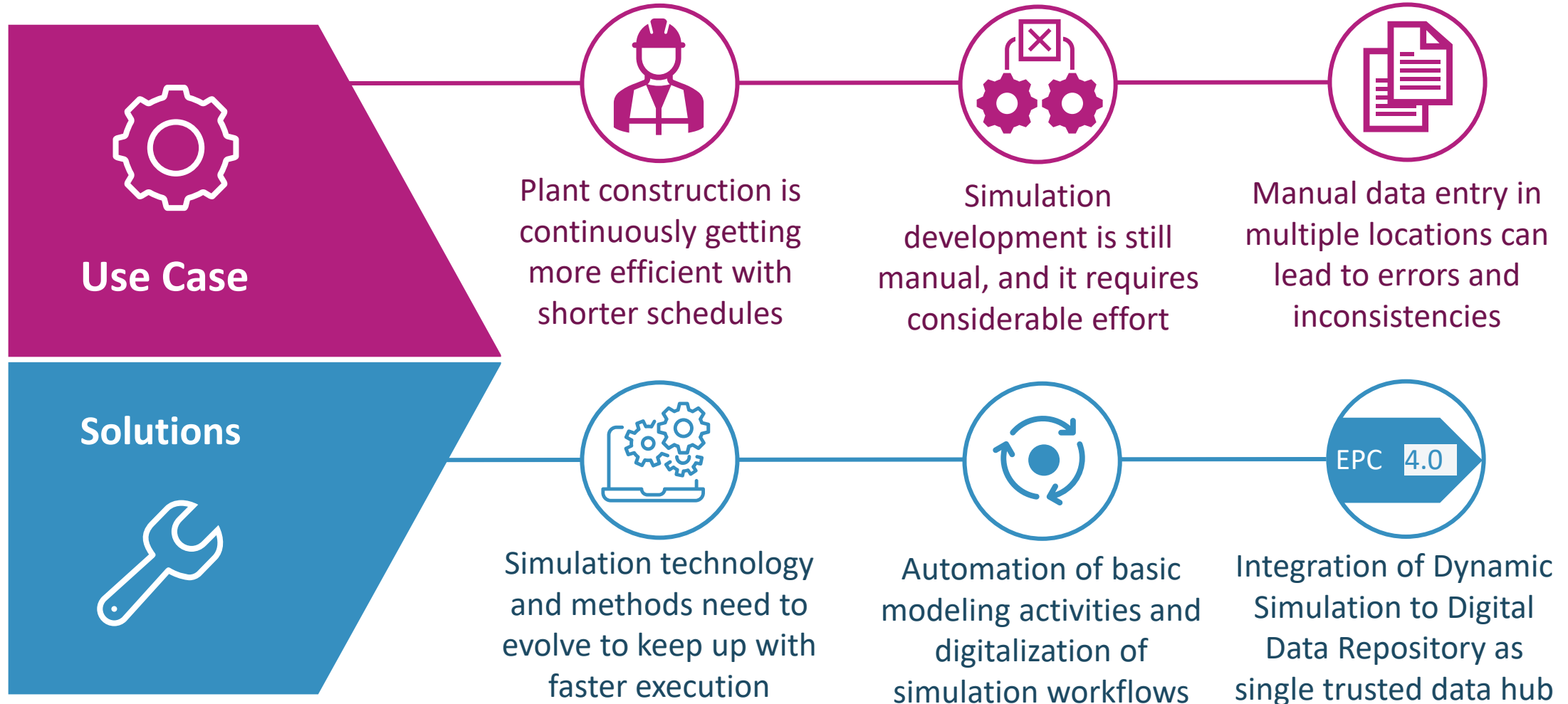
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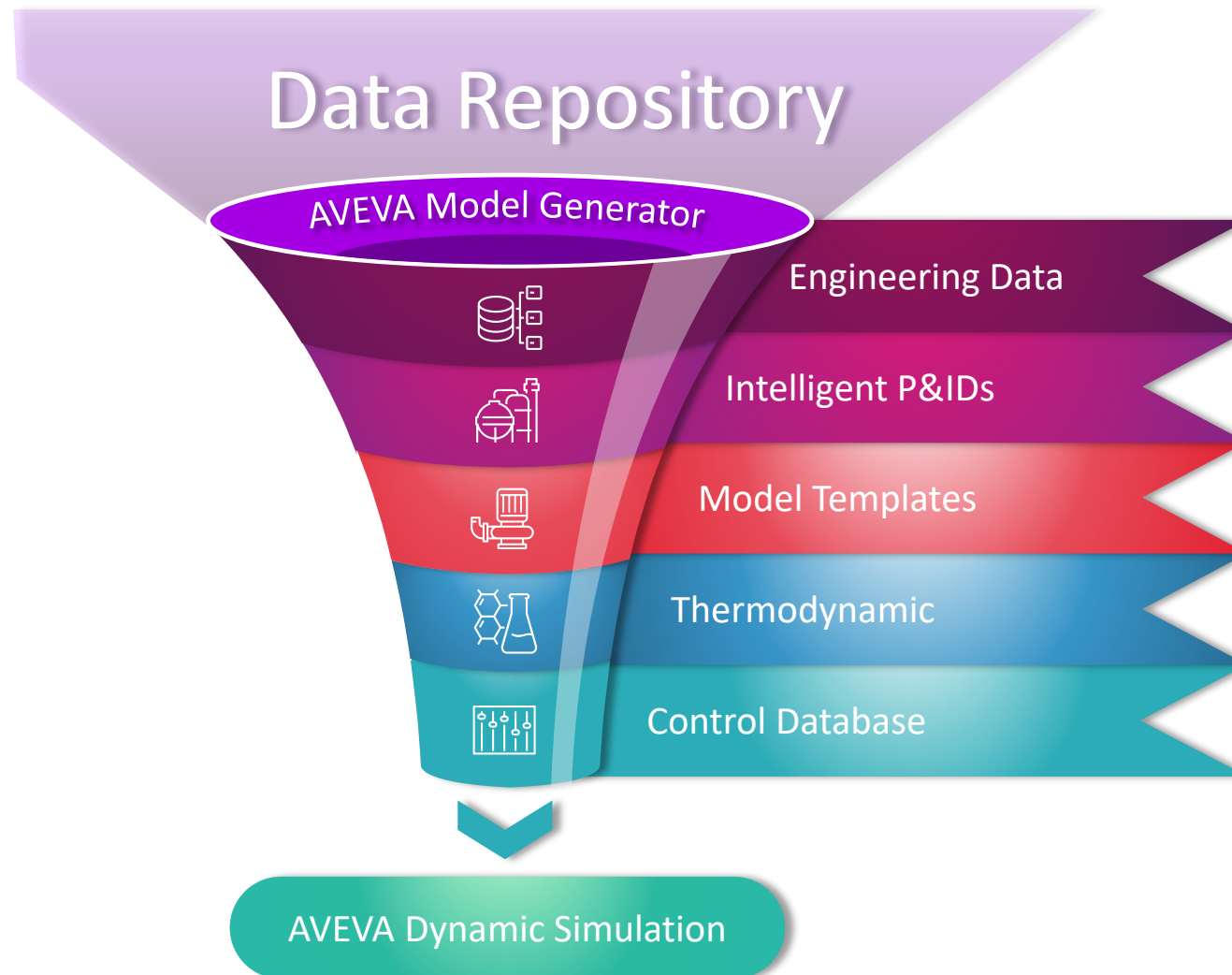
Seventeen years and counting



Keeping up with faster execution



AVEVA Model Generator in a nutshell



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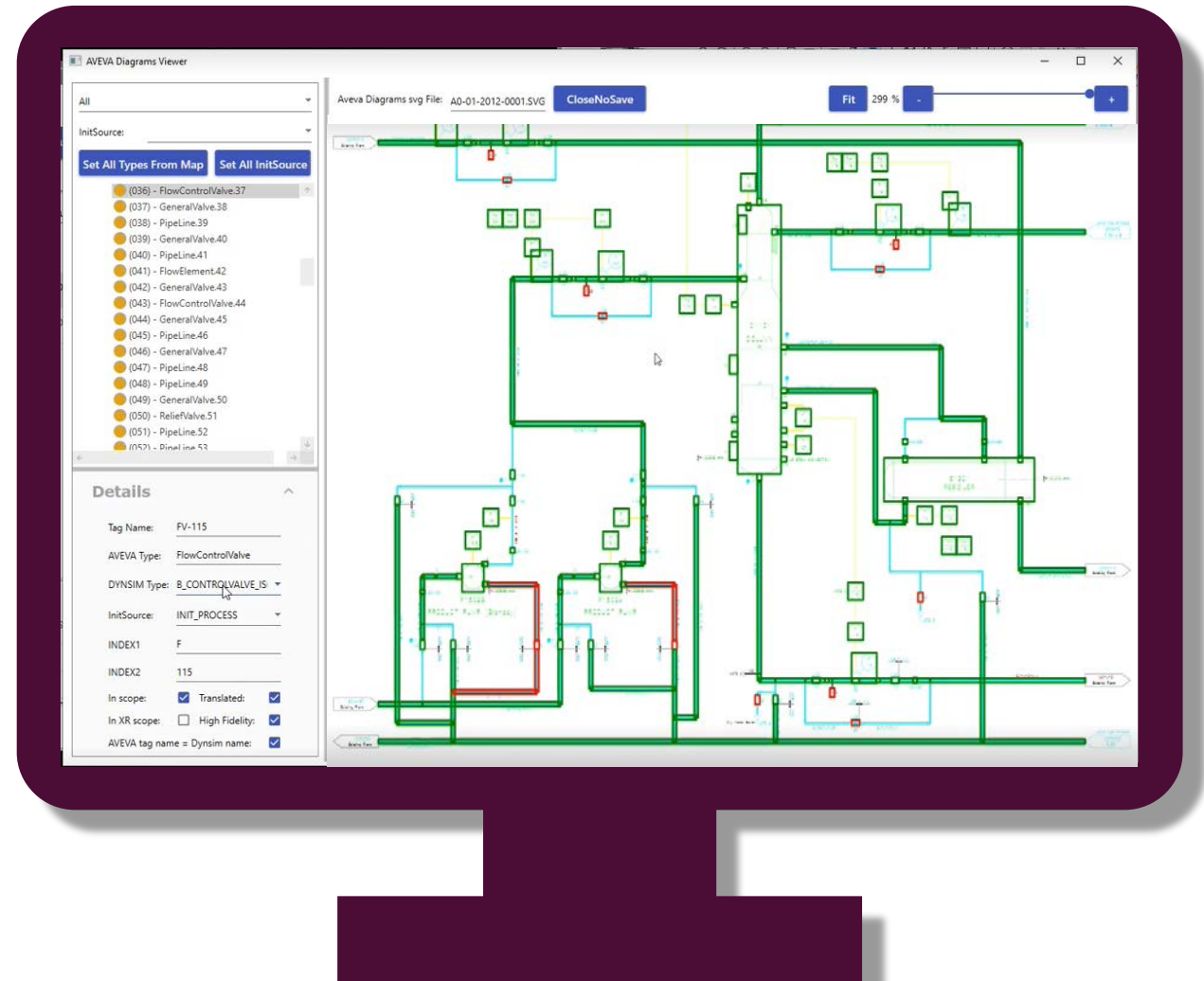
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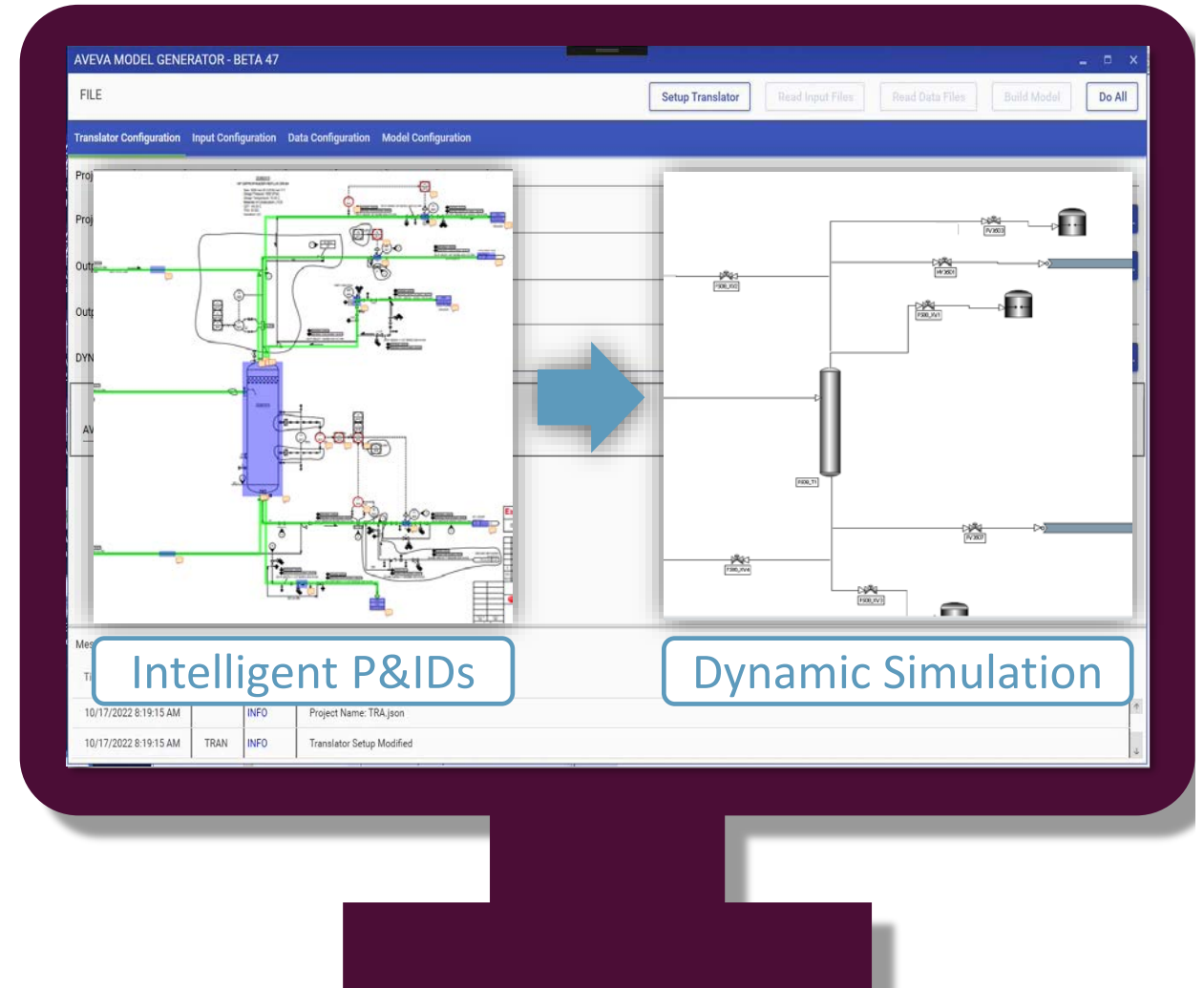
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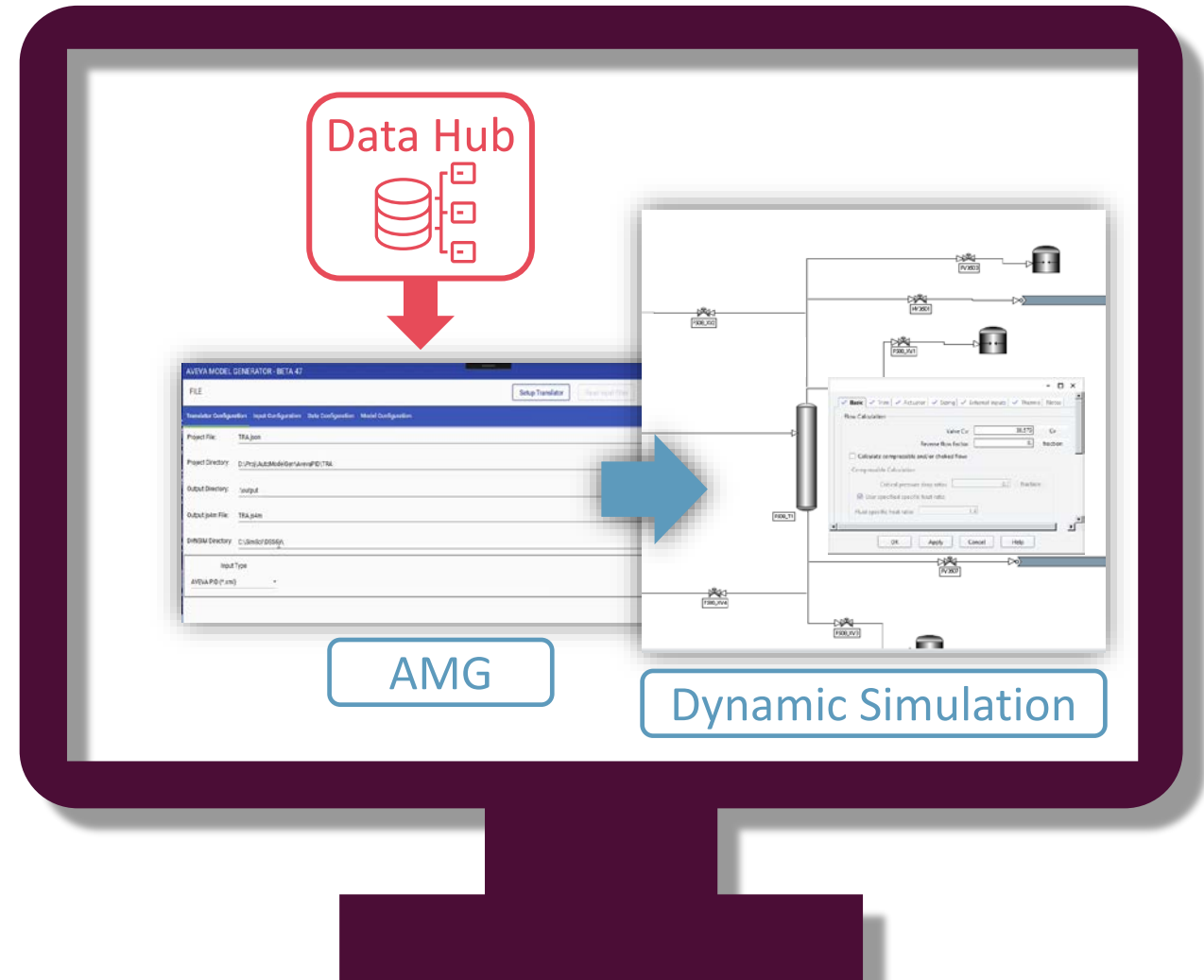
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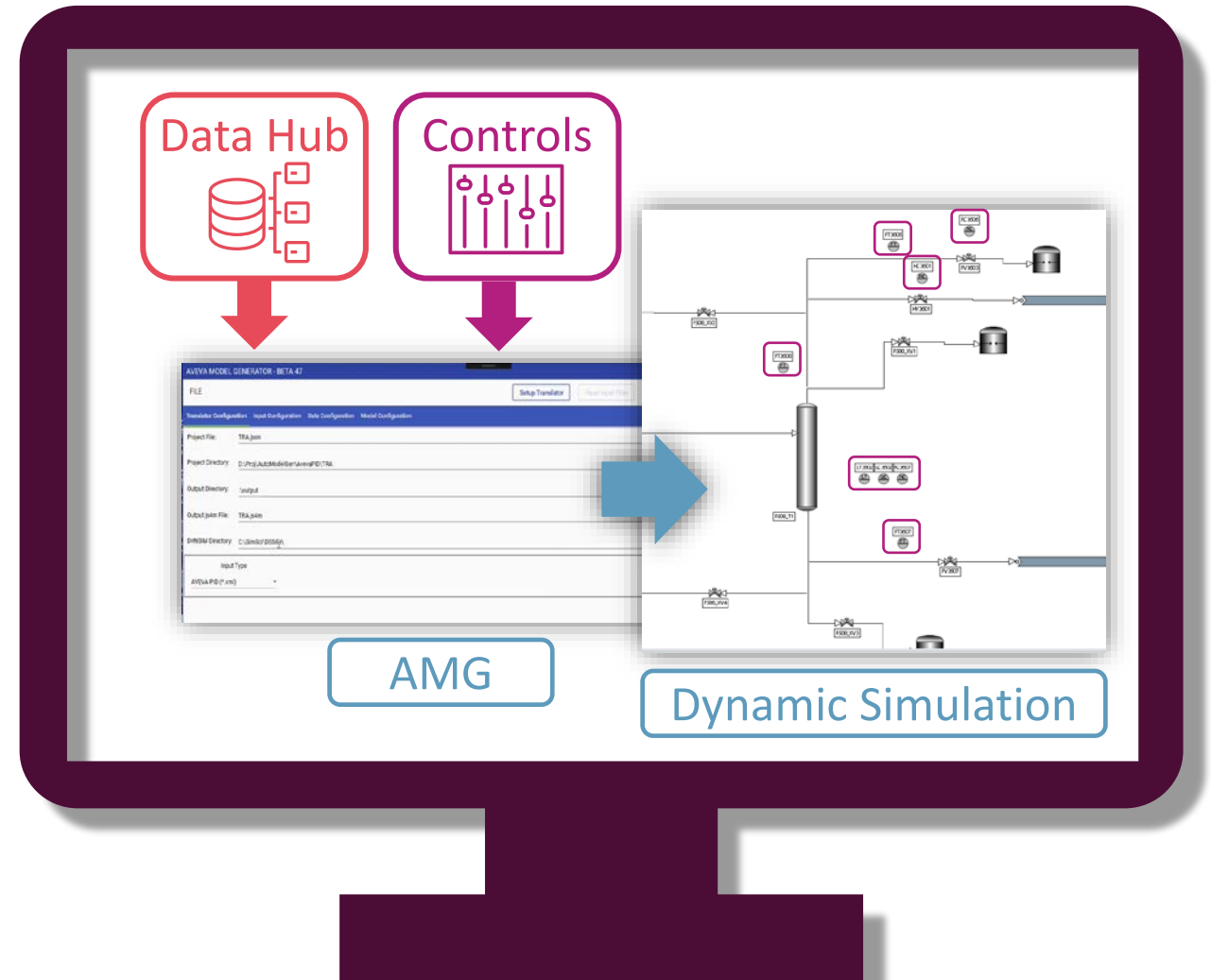
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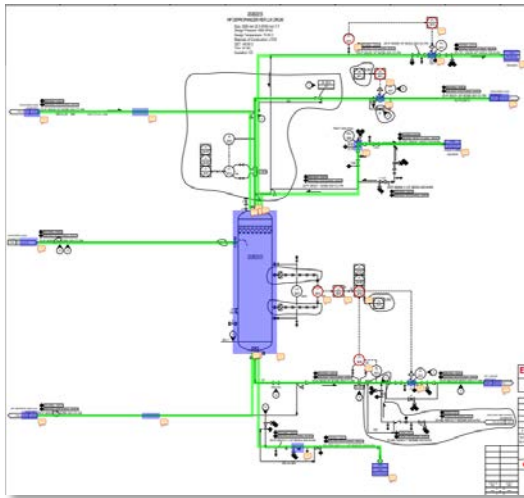
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- 5 The tool can read from the control database to automate the control integration.



Initial Results after using AVEVA Model Generator

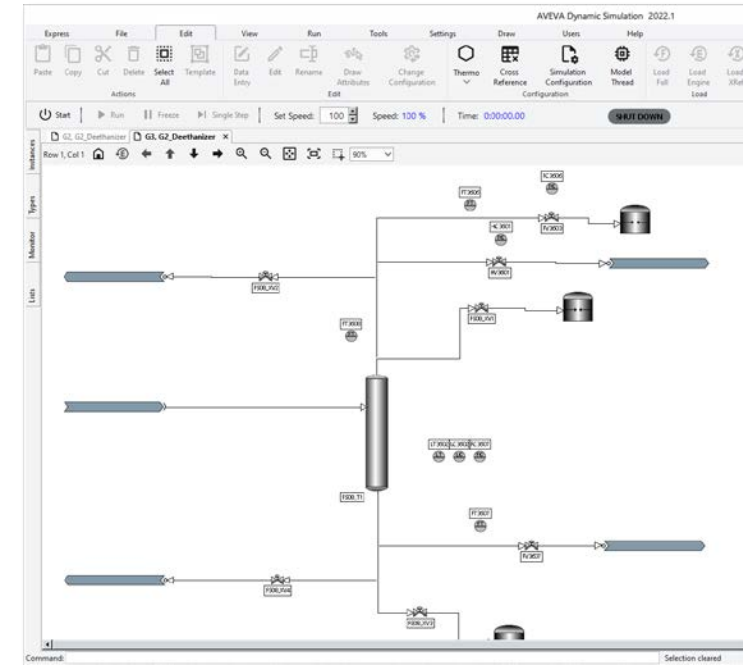
- 1 We marked up electronically a set of P&IDs as we could not get them exported as SVG or DEXPI
- 2 We manually created an empty simulation with the correct thermo and component slates
- 3 We used AVEVA Model Generator to translate the P&IDs into the AVEVA Dynamic Simulation model
- 4 The tool created one dynamic model flowsheet for each P&ID
- 5 Equipment items and instrumentation in scope were added



Scoped P&ID

Item	Symbol	Stream	Hidden	ImageNormal
HEAT	HS	HEATSTREAM	<input type="checkbox"/>	ImageNormal
MECH	MS	MECHSTREAM	<input type="checkbox"/>	ImageNormal
SINK	SNK	SINK	<input checked="" type="checkbox"/>	ImageNormal
VALVE	XV	VALVE	<input checked="" type="checkbox"/>	ImageNormal
PIPE	PIP	PIPE	<input checked="" type="checkbox"/>	ImageNormal
PUMP	P	PUMP	<input checked="" type="checkbox"/>	ImageNormal
EXP	T	EXPANDER	<input checked="" type="checkbox"/>	ImageNormal
HDR	H	HEADER	<input type="checkbox"/>	ImageNormal
MIX	MX	MIXER	<input type="checkbox"/>	ImageNormal
SP	SP	SPLITTER	<input type="checkbox"/>	ImageNormal
VES	V	DRUM	<input checked="" type="checkbox"/>	ImageNormal
HX	E	HEATEXCHANGER	<input checked="" type="checkbox"/>	ImageNormal
UHX	E	UTILITYEXCHANGER	<input checked="" type="checkbox"/>	ImageNormal
SSET	SS	STREAMSET	<input type="checkbox"/>	ImageNormal
TRAN	TR	TRANSMITTER	<input type="checkbox"/>	ImageNormal
SEND	SND	STREAMSEND	<input type="checkbox"/>	ImageNormal

AVEVA Model Generator



Built Model



Implementation Challenges and Potential Solutions

- P&IDs were marked up manually as we could not obtain electronic P&IDs in DEXPI or SVG format
- It is currently not possible to merge multiple P&IDs into one flowsheet
- Complex model objects cannot be translated by AVEVA Model Generator
- Data entry was input manually as electronic data was not available
- Objects are not resized so connecting streams are not always matching the P&ID layout.
- Instrumentation is shown as not connected so we had to draw the instrumentation lines
- P&IDs exported in XML format are now available from the project to retry AVEVA Model Generator as originally intended

Next Steps and Goal



Conclusions and Recommendations



Keeping up with faster execution

Simulation technology and methods need to evolve to keep up with faster execution.

Digital Data Repository as single trusted data hub

Data-centric approach reduces the risk of errors, delays and increased project cost throughout the asset lifecycle.

Together we can make a difference

It is still difficult to obtain intelligent P&IDs in formats allowing data exchange. We should work together to make this an industrial standard.

Be open to new technologies

We could have been discouraged from the initial challenges, but instead we believe in this new technology which could change the way we are executing simulation projects.



Angel Ojeda

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