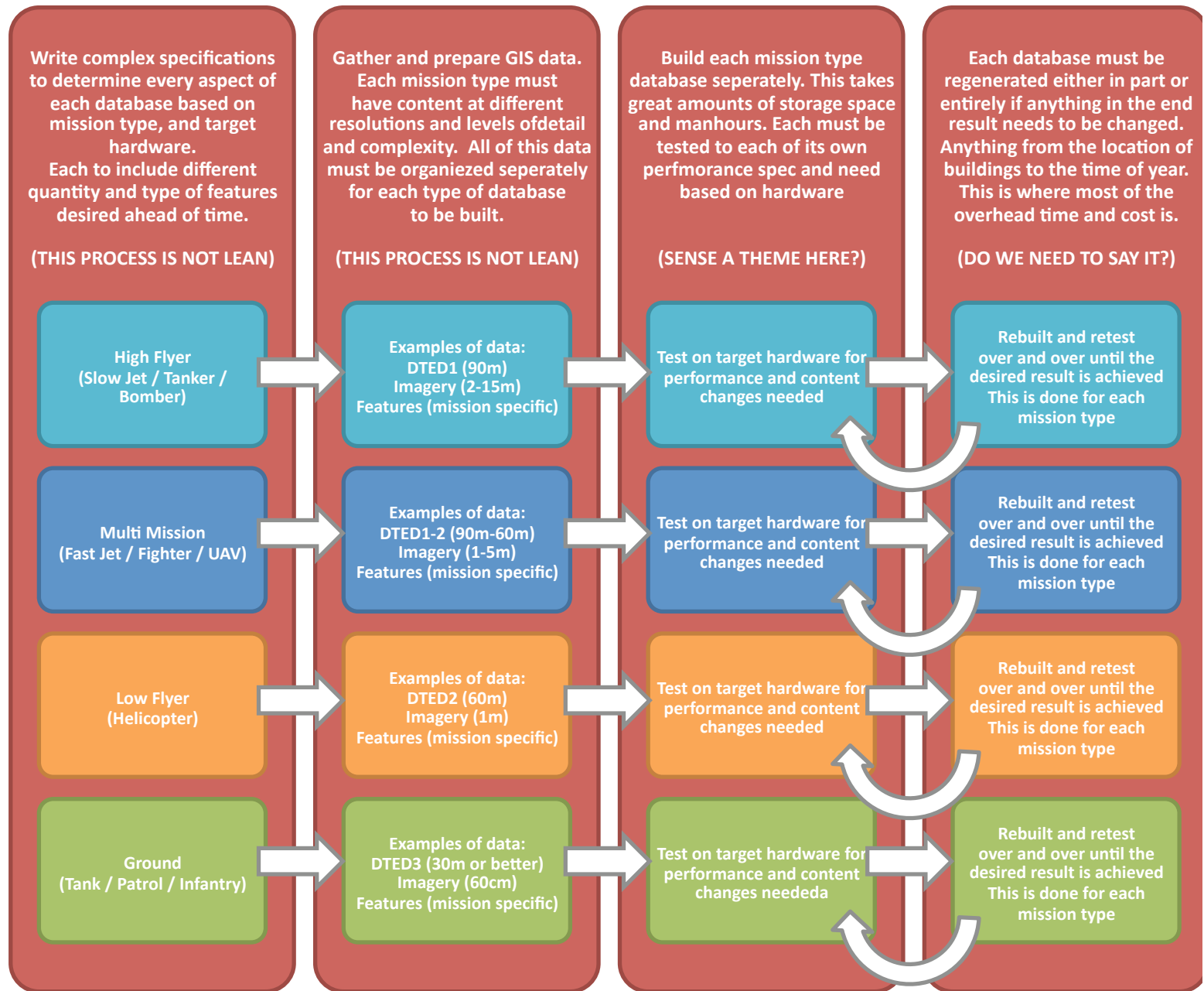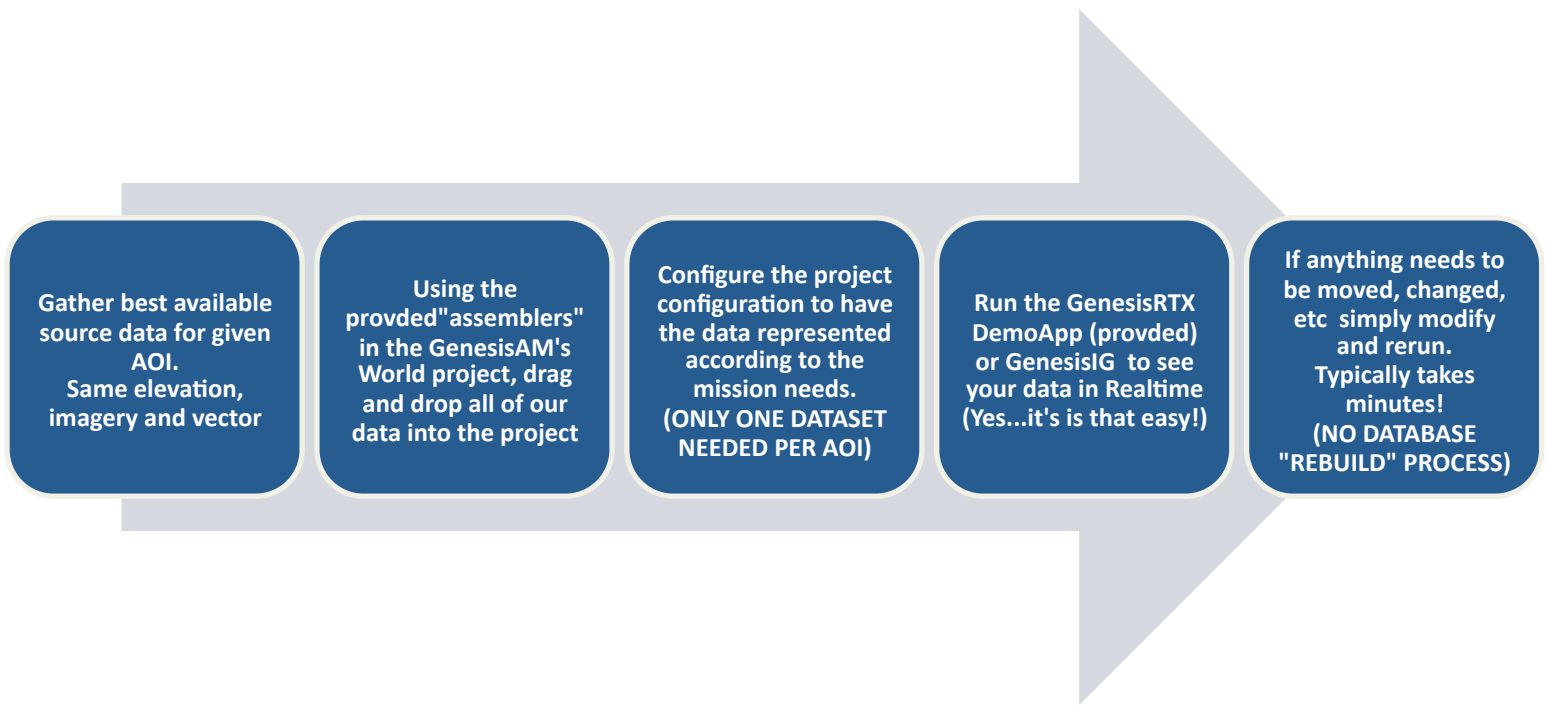# Why DVC?: Building Proprietary "Databases" vs. using GIS datasets natively:

The process of building a database vs. using the GIS datasets in their native formats has great cost differences as explained in our section called "Low Cost of Ownership". Here however we will go over some of the more technical aspects of why you should care about this outside of the cost and manpower.

Below is the process for building a database that all other Image Generators in the Simulation industry:

Write complex specifications to determine every aspect of each database based on mission type, and target hardware. Each to include different quantity and type of features desired ahead of time. **(THIS PROCESS IS NOT LEAN)**	Gather and prepare GIS data. Each mission type must have content at different resolutions and levels ofdetail and complexity. All of this data must be organiezed seperately for each type of database to be built. **(THIS PROCESS IS NOT LEAN)**	Build each mission type database seperately. This takes great amounts of storage space and manhours. Each must be tested to each of its own perfmorance spec and need based on hardware **(SENSE A THEME HERE?)**	Each database must be regenerated either in part or entirely if anything in the end result needs to be changed. Anything from the location of buildings to the time of year. This is where most of the overhead time and cost is. **(DO WE NEED TO SAY IT?)**
High Flyer (Slow Jet / Tanker / Bomber)	**Examples of data:** DTED1 (90m) Imagery (2-15m) Features (mission specific)	**Test on target hardware for performance and content changes needed**	**Rebuilt and retest over and over until the desired result is achieved** This is done for each mission type
Multi Mission (Fast Jet / Fighter / UAV)	**Examples of data:** DTED1-2 (90m-60m) Imagery (1-5m) Features (mission specific)	**Test on target hardware for performance and content changes needed**	**Rebuilt and retest over and over until the desired result is achieved** This is done for each mission type
Low Flyer (Helicopter)	**Examples of data:** DTED2 (60m) Imagery (1m) Features (mission specific)	**Test on target hardware for performance and content changes needed**	**Rebuilt and retest over and over until the desired result is achieved** This is done for each mission type
Ground (Tank / Patrol / Infantry)	**Examples of data:** DTED3 (30m or better) Imagery (60cm) Features (mission specific)	**Test on target hardware for performance and content changes neededa**	**Rebuilt and retest over and over until the desired result is achieved** This is done for each mission type

Gather best available source data for given AOI. Same elevation, imagery and vector

Using the provded"assemblers" in the GenesisAM's World project, drag and drop all of our data into the project

Configure the project configuration to have the data represented according to the mission needs. (ONLY ONE DATASET NEEDED PER AOI)

Run the GenesisRTX DemoApp (provded) or GenesisIG to see your data in Realtime (Yes...it's is that easy!)

If anything needs to be moved, changed, etc simply modify and rerun. Typically takes minutes! (NO DATABASE "REBUILD" PROCESS)

Genesis' process is leaner due to the fact that once the data is brought into the project; it can be used for all mission specific needs. Thus "Configure Once, Use Everywhere". The GIS data does not get processed into actual polygons until it is in memory, and due to the fact that GenesisRTX is written from the ground up in 64-bit space, it takes advantage of all of the memory on the COTS hardware as well as all of the memory on the video card. 32-bit Image Generators cannot do this.

GenesisRTX is written to take all WGS84 Geographic data. This means we are capable of delivering a truly global dataset. Not Projected into "Flat Earth" space, but actual Round Earth, unadulterated space. We don't convert the data set's Latitude/Longitude to X/Y coordinate space. This ensures that no matter where you are on the Earth, your data is un-skewed and accurate, just like the real Earth. This is how we can have many Areas of Interest (AOIs) all within the same "Whole Earth" data set. With other "database standards" each individual AOI must be built separately and then loaded and unloaded as need to or as you reach their geographic bounds (with a break in simulation event) to complete this process.

With GenesisRTX, you simply fly from one AOI to the next. The way the real world is built. This is why we refer to AOIs as Data Sets, and not a database. A database gets built, where GenesisRTX runs the data on the fly in actual real time. This allows so much more flexibility in the design of the project because decisions can be made as needed or agreed upon, long after the initial data has be loaded and AOIs visualized by the customer. This is a true fundamental of a Lean Process: Deferred Commitment. This also allows for Agile Process. The ability to deliver content as you go along or as you able to obtain the data, instead of waiting for all of the data to be in-house or until you are done processing the database to be able to see any of the results. It is a linear, short process to get to see your data. This way comments and further design decisions can be made along the way. Within the same day or less is many cases!