Lessons learnt from transition to 19115-1

These will be a little agency specific, and unfortunately a little hazy (I should have written these down while it was all still fresh).

1. Our situation is a little different to most – we use the DIF 9 standard developed by the Global Change Master Directory and convert our records into ISO profiles behind the scenes. All our records are made available via an OAI-PMH harvester. Records are made available in the following formats:
   1. DIF 9
   2. ISO 19115
   3. ISO 19115-MCP
   4. ISO 19115-ANDS (a special version that ARDC then converts to RIF-CS)
   5. ISO 19115-ANZLIC
   6. ISO 19115-AODN (only three special case records requested by AODN in a particular format)
   7. ISO-19115-1/-3
2. Records are transformed via XSLTs (except AODN specific records), as all records are stored in XML format.
3. Although there were converters for changing 19115 to 19115-1 I thought it best to go back to the beginning and write a new converter for changing DIF 9 to 19115-1 (rather than DIF 9 to 19115 to 19115-1 – too much possibility for “Chinese whispers”).
4. The main problem for me was that I didn’t know what all the namespaces were for 19115-1 (they’d changed from 19115).
5. Process:
   1. Created a mapping from DIF 9 to 19115-1, including x-paths, role codes, etc.
   2. Developed a complete 19115-1/-3 record that incorporated every DIF 9 field. A dummy record from Evert Bleys got me started on this (he had all the namespaces), and provided enough information for me to fill in the blanks (Evert also contributed to some of the trickier blanks…).
   3. This was simply a case of constructing the XML 19115-1/-3 document, ticking off DIF 9 elements as I went (making sure to repeat the repeatable elements). At first I simply copied Evert’s dummy record, but as I became more comfortable with it, I would work directly from the standard and my mapping document, and insert the correct namespaces as I went.
   4. As mentioned above, there were a few elements that required more thought – namely VerticalCRS (solution from 19115 was re-used and updated with new namespaces and id codes), and horizontal, vertical and temporal resolutions (needed a way to insert labels – Evert suggested using xlink).  
      So as well as a starting point (DIF 9), I now had a finishing point (19115-1/-3).  
      This finishing point was then validated against the 19115-1/-3 profile/schema using the Geoscience Australia tool to make sure the dummy record was valid and correct.
   5. My original 19115 XSLT was written in a “procedural” manner. The new 19115-1/-3 XSLT was written in a “functional” manner with templates. Vastly reduces the size of the XSLT and makes it easier to maintain and update.
   6. The XSLT was tested a piece at a time - as each section was completed it was tested and validated for basic compliance with XML formatting. Once the whole XSLT was finished it was tested against a large number of real records, each of which was then validated using the GA tool. This threw up a few more validation errors – namely because with real records not all fields are generally completed and there were a few conditional obligations missed in the XSLT (e.g. if this is absent, you have to have that instead, etc.).  
      These validation errors were then addressed and checked.
   7. Once the XSLT was finalised, all DIF 9 records were converted and placed on the OAI-PMH service.