Ordnance Survey Ireland – custodian of Ireland's digital geographic record

Client:

Ordnance Survey Ireland (OSi)

Industry:

National Mapping Authority

Key Benefits for OSi:

▷ Improved efficiency and more current data – what previously took two weeks can now be completed in a single day

▷ Enabling better decision-making for customers

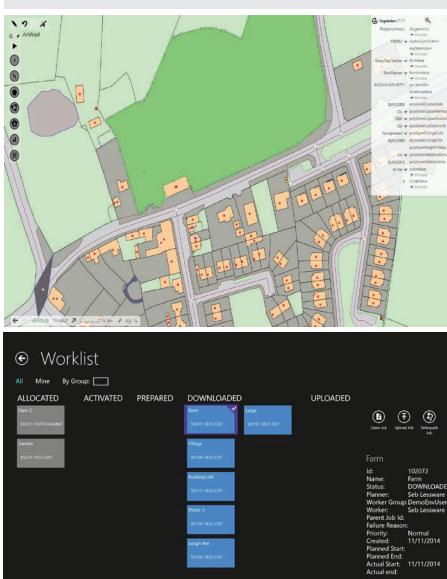▷ Future-proofing the organisation

Image 1: 1SMS provides automation for OSi.

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Ordnance Survey Ireland (OSi) has a proud history of quality and innovation. It was founded in 1824 to produce accurate mapping as the basis of a more equitable tax system. As a consequence, Ireland was the first country on earth to be mapped at a scale of six inches to one mile. OSi has maintained its position as one of the world's most advanced mapping agencies, moving from the use of engraved limestone slabs, through copperplate etching, to digital technology. By the end of the twentieth century, OSi was one of the largest civilian users of digital photogrammetry (taking measurement from aerial photography) in the world.

However, as **Chief Executive Colin Bray explains,**

❝ For all that technology and innovation, we were still revising a cartographic product. ❞

Meeting a growing demand for spatial information

The common method of maintaining map data involves creating and updating tiles holding digital cartographic representations of traditional paper maps. Managing data within this model is expensive and time-consuming. Making a single change, for example changing a crossroads to a roundabout, involves locking the tile or tiles that are affected, extracting the relevant data, conducting the survey, updating the data, validating it and then re-integrating the new data into the core database. Every stage of the process typically involves a high level of manual work.

Colin had seen a steady increase in demand for reliable, spatial data.

❝ With the everyday use of information on our smartphones or tablets, there is a greater understanding of the value and use of spatial information," he explains. "With spatial information, we link all those data-sets whose only common point is location.

This has been recognised by all government bodies and there is demand to use spatial data for more effective decision-making. ❞

The OSi team recognised that meeting increased demand for ever more timely information would require a fresh approach.

From cartographic product to a digital model of the landscape

The organisation realised that the solution was to move from updating map sheets (albeit in digital form) to maintaining a real world, object-oriented data model; a digital representation of the landscape made up of over 50 million individual objects, each with its own Globally Unique Identifier.

1Spatial enjoys a strong relationship with OSi which has been built over 30 years of working together. The company worked closely with OSi to develop and populate its new, real-world object database PRIME2, and in the implementation of the 1Spatial Management Suite (1SMS) to manage the PRIME2 data.

" 1Spatial has a deep understanding of the complexity of our legacy data. In partnership, we've strived to make important innovations such as the new data model and new workflow management systems that enable us to effectively and efficiently update our database, explains Colin.

The concepts in our original, PRIME, platform were innovative in their time, but are now 35 years old. We've had to develop new approaches and have taken advantage of recently maturing data standards. PRIME2 is completely aligned with industry standards. This is Ordnance Survey Ireland's largest innovative change in 190 years. We are completely refocusing and reframing what we do as an organisation. **"**

Colin Bray, Chief Executive, OSi

Efficiency and quality

OSi has always taken pride in the quality and consistency of the information it provides. In the past, this involved a great deal of manual processing and checking. In PRIME2, OSi deployed 1SMS, a set of products that manage the end to end process of planning, maintaining and publishing spatial data. Using rules-based automation, 1SMS ensures that the data in PRIME2 is safe, accurate and always in a validated, publishable state. It enables OSi's staff to focus their time where it is most valuable by removing large amounts of routine, administrative tasks.

Surveyors in the field now receive their projects, along with all required data and related imagery, direct to their tablet or laptop. As the survey work progresses, the system runs over 200 rules on the surveyor's device to ensure his or her data complies with data model requirements. Once the updated information is transmitted back to OSi's offices, a further 400 automatic rules are run before any new data is accepted into the core database. Expert intervention is only required to resolve flagged exceptions in the data. If the rules identify any non-conformances in the data, the system automatically dispatches a remedial job to the surveyor for completion prior to acceptance of the data.

Because conflicts are managed when projects overlap, several projects can run concurrently in the same area. The system either automatically resolves any conflicts that occur, or dispatches a conflict resolution job to a specialist user, thereby ensuring that the quality and integrity of the core data is maintained. Colin notes that, "activities that would typically have taken weeks in the past, can now be done in days."

Better decision making for government and business

PRIME2 represents a fundamental shift for OSi's customers, too. Not only can OSi keep their data more current and do this cost-effectively, it can provide this information to users in a standards-compliant, "agnostic" format that can drive automation in business systems. As a result, a utility company planning and costing a new underground cable or pipeline, can gain a much deeper understanding of the target environment: which surfaces are hard or soft, the form and function of nearby buildings, etc. Richer information enables more accurate costing and more effective planning.

For government departments, this new, national spatial platform provides a standardised and authoritative way for referencing all information that has a location. In turn, this supports more effective decision-making for government. As Colin observes, "No longer is OSi information just a back-drop map, it is actually a fundamental part of our users' business solutions."

Future proof

One of Ordnance Survey Ireland's objectives in developing PRIME2 was that it should be future-proofed. One important aspect of this is the capability to handle spatial data in three dimensions. The PRIME2 data model is compatible with CityGML, a data standard for modelling the built environment. Already OSi is working to include three dimensional information – such as realistic building shapes and skyline visualisations – into PRIME2.

" When I see the progression of national mapping, not only do I see us progressing from a cartographic view to a digital, object-oriented model of the real world, I also see us moving from a planimetric to a 3D understanding, **"** explains Colin.

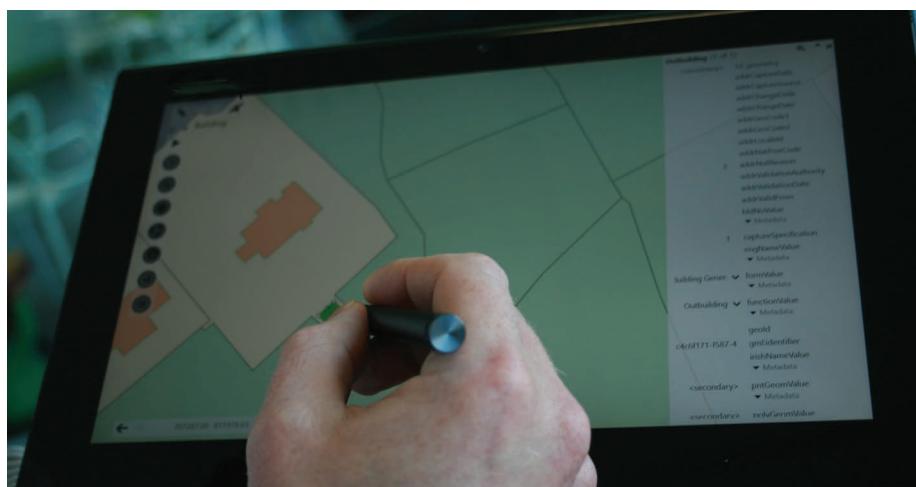For more information about 1Spatial's solutions call **+44 (0)1223 420414,** email **info@1spatial.com** or visit **1spatial.com**

Image 2: 1Edit in action - © 1Spatial Plc

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