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Topic (i): Developing common high-level architectures

The CSO's IT Strategy 2010-2012: using the GSBPM to support good governance

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I. Introduction

1. At the 2009 MSIS meeting, the CSO presented a paperⁱ about some of the challenges for IT governance and co-ordination in an organisation which combines central IT services and IT development by a large number of power users. Much of the paper was about our corporate culture and the factors which influence the acceptance by staff of corporate systems, standards and decision processes. The paper concluded with some lessons for the CSO's next IT strategy, to improve business "buy-in" across systems, standards and governance.

2. This year's paper is, in many ways, an update on the situation presented to MSIS in 2009. It describes the main features of our *IT Strategy 2010-2012* which was finalised in March 2010. The strategy follows a period of considerable investment in IT systems for statistical processing and analysis – notably the generic Data Management System (DMS) for processing and the upgrade to SAS Enterprise Business Intelligence (SAS BI) for analysis. A key objective of the strategy is to consolidate that investment, with developments in the next three years rolled out in relatively small projects.

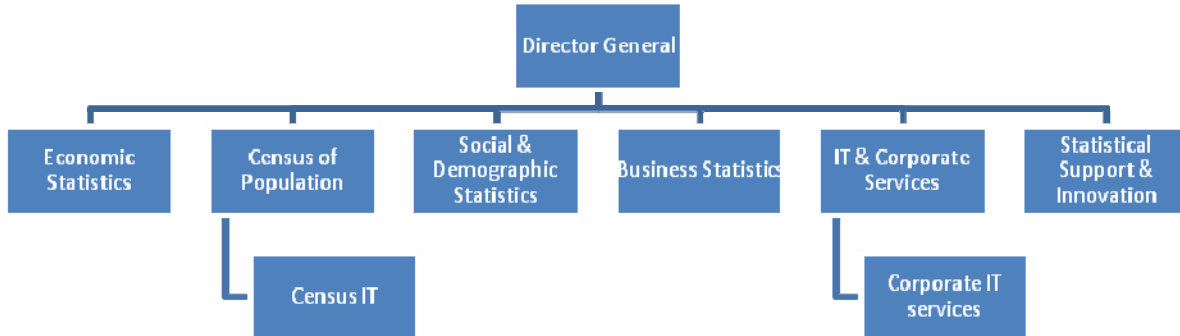
3. The strategy is closely aligned with business development requirements, in particular with the *Plan for Business and Organisational Development* prepared by the CSO in 2009. It defines the core application and software toolset to be used by the CSO in meeting business requirements and it introduces simplified governance and project management procedures. Throughout the strategy, the Generic Statistical Business Process Model (GSBPM)ⁱⁱ is used as a reference point – not only in describing the statistical production process, but also as a framework for better governance and quality management practices.

4. Section II of this paper describes the main inputs to developing the IT strategy; section III sets out the key principles and actions in the strategy; and Section IV describes how the GSBPM is used as a constant reference point throughout the strategy.

5. Before proceeding to Section II, the following is some very brief background information about the Central Statistics Office. We have offices in three locations – two in Dublin and one in Cork – and a total staff

of 750 on a full-time equivalent (fte) basis. The staff total includes about 100 (fte) field staff engaged in the collection of household surveys. The CSO is organised into six directorate areas, as illustrated in Figure 1 below. The majority of corporate IT services are provided centrally by the IT and Corporate Services directorate, apart from the specialised applications requirements of the five-yearly Census of Population.

Figure 1: CSO directorate-level organisational structure and responsibility for IT services



II. Developing the IT Strategy 2010-2012

A. Input from Users

6. Preparation of the strategy began in 2008 with the appointment of an IT Strategy Steering Group, comprising staff from CSO business and IT areas. This group helped to ensure that business and user requirements fed into the strategy.

7. The group organised workshops to get feedback on users' concerns and priorities in relation to IT. The following were the main issues identified in the workshops:

- a) Uncertainty about the future role of the DMS and the capacity of the CSO to develop and maintain the system in line with business needs. This point is elaborated in sub-section C below.
- b) A wide range of new and emerging business requirements, involving new IT development. These requirements were further clarified in the *Plan for Business and Organisational Development* – see sub-section B below.
- c) Insufficient central support for end-user computing, including a lack of technical support for SAS users, a lack of clear policies and standards for end-user developed IT and the need for more training, coaching and mentoring.
- d) Demand for upgraded desktop and groupware tools.
- e) Need for better and more targeted communication to users, of IT policies and developments.
- f) Lack of training for non-IT staff, particularly in end-user tools and in corporate standards and policies.
- g) Project management and governance procedures seen as difficult to follow. Demand for a simplified and more visible IT decision-making process, with greater help for users.
- h) Lack of IT resources for new business projects due to commitment of resources to DMS migration and knowledge transfer.

8. Most of the above feedback was obtained during 2008. However, preparation of the strategy took until March 2010, mainly because there were two further major inputs – the *Plan for Business and Organisational Development* and the review of the DMS project.

B. Plan for Business and Organisational Development

9. Towards the end of 2008, the CSO Senior Management Committee began a strategic review of the challenges facing the Office and how these affected our structures and work processes. The challenges included the demand for statistics; reduction of response burden; and continuing to develop the overall Irish Statistical System. The worsening budgetary climate was an important (but not the only) influence on the review. A key purpose of the review was to maximise the CSO's organisational potential to deliver on our corporate objectives.

10. The resulting *Plan for Business and Organisational Development* was completed in May 2009 and its implementation began in September 2009. Under the plan, the business and social statistics directorates have been re-structured to bring similar work processes closer together. This is an extension of the process organisational model already implemented in some of the CSO's business areas. The new structure will enable more efficient collection and processing together with greater depth in the analysis of data.

11. The plan also involves organisational changes to support our objectives of reducing response burden and developing the Irish Statistical System. A Large Cases Unit has been established as a central point of contact for the largest enterprises (which collectively have a large economic impact in Ireland). And, to co-ordinate the greater use of administrative data sources, a new division called the Administrative Data Centre has been set up.

12. Before the plan, web development and e-Government initiatives had been managed by a non-IT business unit. Responsibility for the provision and support of web services has now been integrated into the IT directorate. A System User Support Team was also set up in September as a first point of contact for business managers in the initial stages of a project or business initiative. This team will play an important role in promoting better governance and improving IT's response to business demands.

13. While the new organisational structures arising from the plan have been put in place, it also depends on the provision of enhanced IT services. The following are some of the high-level business requirements which will need IT support over the next 2-3 years:

- a) More linkage and integration between data sources, including survey and administrative data;
- b) More integrated survey organisation, to support process organisation and single point of contact;
- c) Development of scalable and flexible household survey system;
- d) Provision of CATI and case management tools for use in household and business surveys;
- e) Re-engineering of National Accounts compilation systems to reduce dependence on Excel;
- f) Provision of new and improved e-forms and web solutions for return of statistical data to the CSO;
- g) Development of workflow and content management system for electronic publication of statistical releases;
- h) Review of Corporate Data Model, to take account of: greater use of administrative sources; security, scalability and data integration requirements; and electronic dissemination of statistical releases.

C. Lessons from DMS Project

14. While the above plan was being developed, a major review of the DMS project was also under way. The project to build the Data Management System began in late 2003 and the system went live in September 2007. The DMS was designed as an end-to-end generic processing system covering each step from data capture to dissemination of results. The project set out a complex and comprehensive vision, not just for IT – the DMS was to be an enabler for organisational change and the greater implementation of a process rather than silo approach to survey organisation.

15. The review in late 2008 / early 2009 was prompted by concerns about the slow pace of migration of surveys to the DMS and the need to assess the capacity of the system to meet all users' requirements. The review looked intensively at the original strategic objectives of the DMS project; how the project was implemented; whether it delivered the intended functionality; and issues arising during migration.

16. Positively, the review found that the DMS has delivered a solid technological platform for capturing and processing statistical data. The system is a strategic part of our IT infrastructure and it enables survey managers to specify and implement their data processing requirements for a new survey more quickly than in the traditional bespoke IT systems model.

17. The review made a number of key recommendations about the DMS, which have been incorporated into the IT strategy:

- a) Utilisation and support of the DMS will concentrate on the survey management, data collection and processing phases of the statistical value chain.
- b) Some other steps in statistical production – e.g. seasonal adjustment, imputation, dissemination – will no longer be supported by the DMS but will be provided by non-DMS software.
- c) Changes to the DMS which help users with data collection, editing and processing will be prioritised.
- d) The DMS will be the CSO's core system for data collection and processing for business surveys. Legacy applications which can be replaced by the DMS will be retired in the period 2010 to 2012.

18. The review identified the deferral of DMS change requests during the migration / knowledge transfer phase as a serious issue for users. During this phase, IT staff were preparing to take over DMS application maintenance from the external contractor and were heavily committed to learning the detail of the DMS applications. Change requests took second place and users were understandably unhappy. Similar concerns about IT capacity to support new business projects had been raised in the user workshops organised by the IT Strategy Steering Group.

19. In May 2009, the CSO took over responsibility for application maintenance from the external contractor. All aspects of the DMS – hardware, database and application support – are now managed in-house by the CSO. Our experience of maintaining the applications and rolling out changes since May 2009 has been positive and we are confident of our capacity to meet future user requirements.

20. Overall, the DMS was a complex and ambitious change programme. While it has ultimately delivered a core strategic system, the full ambitions of the project were not realised. Learning from the project over a period of almost six years, our strategy for 2010 to 2012 will be to consolidate the existing applications, including the DMS, and to implement new developments and additions in relatively small projects. Key features of our approach to applications development will be small scale of projects; re-usability of solutions, software and applications; and inter-operability of software. These will help us to realise earlier benefits from each new IT investment.

D. Organisational Culture

21. At a high level, our experience of building and implementing the DMS has highlighted issues in relation to:

- a) Achievability;
- b) Requirements management and scope;
- c) Quality control and capability;
- d) Business engagement and culture.

22. A full review of these issues would merit a paper in its own right! I'd just like to briefly consider the last item – business engagement and culture in building and utilising the DMS.ⁱⁱⁱ

23. The DMS project required sustained leadership, focus and business engagement to achieve its long-term objectives. There was a strong personal commitment from the Director General and top management. Similarly, survey areas and managers gave a considerable time commitment to requirements specification, training, system testing and user acceptance testing.

24. However, it was difficult to sustain ownership of the project across all business areas for the entire duration of the project. Some managers did not see themselves as primary drivers of the DMS or as having a role in delivering the corporate benefits of a central strategy. The balance between central and end-user computing in the CSO is an important factor in this. Some users would have seen less to be gained, for themselves and their surveys areas, by moving to the DMS.

25. Our general management culture is another important factor. In the CSO's paper to the 2009 MSIS meeting, we described the informality of the CSO's organisational culture. Informality has good and bad consequences: The good is mostly to do with flexibility and getting things done. The bad is the avoidance of formal processes (governance, standards, systems etc.) because local costs and effort are more visible than the long-term corporate benefits.

26. This poses challenges for the communication of corporate strategies and ensuring that business activities are aligned with corporate objectives. In relation to the IT strategy, the challenge is to explain the rationale for IT policies; promote greater "buy in" to corporate decisions on IT; and ensure that business activities are coherent with overall strategy. The GSBPM can be used to communicate these ideas to business managers.

III. Key Features of the CSO's IT Strategy 2010-2012

27. Our *IT Strategy 2010-2012* was completed in March, taking on board all of the inputs described above – i.e. user expectations, IT requirements arising from the *Plan for Business and Organisational Development*, lessons learned from the DMS project, and the communication of corporate strategies.

28. The following is a summary of key points in the strategy:

- a) The IT strategy is business-driven. The developments we undertake over the next three years will reflect business demands.
- b) For applications development, our strategy is to consolidate the existing applications architecture, with developments and additions rolled out in relatively small projects. We aim to realise early benefits from each new IT development.
- c) The DMS is a core strategic application for data capture and processing. During the course of the strategy, we will increase its functionality and support its use by a greater number of surveys.
- d) SAS BI will be the main software product used for statistical analysis. Other strategic software products or applications (e.g. Blaise, National Accounts systems etc.) are specified in the strategy.
- e) Consolidating our applications architecture and defining a core toolset will help us to allocate IT resources more effectively to meet new business needs.
- f) Governance processes and documentation have been simplified. This aims to promote better adherence to sound decision-making processes which affect the allocation of IT resources.
- g) The System User Support Team will provide pro-active support to business areas in developing new projects and ideas (see paragraph 12 above).
- h) There will be greater support for end-user computing, in the form of training and support (particularly for SAS BI) and the development of standards for end-user computing.

29. An important feature of the strategy is that it explains the business rationale for corporate IT policies. For example, it explains the connection between using corporate applications, such as the DMS; consolidating the applications architecture and software toolset; and, in turn, how this will enable more efficient allocation of IT resources to meet new business needs.

30. The document also emphasises ownership of the strategy and that, at every level in the Office, we have a role in ensuring that the standards and policies of the IT strategy are implemented – so that we can make best use of our resources and contribute to the business development needs of the CSO.

31. In general, we've written the strategy in plain non-technical language (although I'm sure some will disagree!) so that it clearly communicates how IT will contribute to the business objectives of the CSO over the next three years. The primary target readership is the staff and managers of the CSO – both in IT and business areas. Interestingly, the phrase “enterprise architecture” is completely absent from the strategy.

32. We want people to read the strategy. We want them to understand it. And to act on it. The strategy articulates, in words, the enterprise architecture for the CSO – i.e. it brings together the different elements which collectively make up IT's contribution to business value.

IV. Putting the GSBPM at the heart of our strategy

33. The sub-title of this paper is “using the GSBPM to support good governance”. At a practical level, we have found the GSBPM to be a very helpful reference point in setting out the rationale for the strategy and ensuring cohesion across the Office.

34. In an appendix to the strategy, we have included a short description of the GSBPM as a common language for statistical offices which helps us to:

- a) Describe and document the steps in the production process;
- b) Describe and define the related IT systems;
- c) Define process-based organisational structures;
- d) Promote generic rather than once-off approaches to methodological, organisational and IT solutions for statistical processing;
- e) Promote coherent and effective data management;
- f) Promote better governance by giving due emphasis to the planning and evaluation phases of the statistical production lifecycle;
- g) Support better quality management;
- h) Support more efficient production of statistics.

35. The DMS – which is a statistical production system – is closely aligned with the GSBPM. In fact, the design of the DMS was strongly influenced by the precursor to the GSBPM - the UN Information Systems Architecture for National and International Statistical Offices, published in 1999.

36. However, the GSBPM is more than a set of production or IT steps. And its influence on statistical organisation is more subtle. The description above includes impacts on organisational structures, repeatable development processes, better data management, better governance, quality management and ultimately more efficient production. All of these are objectives of our corporate strategy and the GSBPM plays an important part in defining, communicating and achieving them.

37. Many aspects of these objectives have already been described in more detail in Section II above. For the remainder of the paper, I'd like to return to our organisational culture and how the GSBPM can help to promote greater “buy in” to corporate strategy. In this regard, I'll mention just two aspects of the strategy – Governance and Financial Management.

38. To promote better adherence to formal decision-making processes regarding IT resources, we have simplified our governance procedures and documentation. This is only the first step. Explaining why a formal approach matters and getting people to accept and implement the new processes are the vital steps.

39. In explaining the new governance procedures to business area managers, we have presented the simplified view of the GSBPM illustrated in Figure 2. Essentially, the message conveyed in this picture is that while statistical production (collection, processing, analysis, dissemination) is very familiar to survey managers, the planning and evaluation phases of a project are at least equally important. Planning and evaluation are intrinsic to quality improvement and to doing things better in the long run.

Figure 2: Simplified view of GSBPM and Quality Improvement Lifecycle



40. In an informal organisational culture, the planning phases will often be neglected as will evaluation and review. However, *ad hoc* decision-making has costly consequences and we need acceptance that formal processes are worth the effort. By explaining the new governance procedures in this way, we were making a number of important connections – with corporate strategy, change management and leadership – linked together by the GSBPM.

41. As regards financial management of IT, we have committed in the IT strategy to refining our metrics of IT costs and IT business contribution. At present, our budgeting and tracking of IT costs is mainly classified by inputs rather than by outputs or outcomes. We intend to map our IT costs to high-level business processes using the GSBPM level-1 framework.

42. Where possible, we will also map costs to business owner areas. It is unlikely that charge-back mechanisms will be introduced during the period 2010 to 2012; this would depend on central changes in Civil Service budget procedures. However, greater analysis and visibility of IT costs will help to raise awareness, across the business, of the costs incurred and the choices and consequences when allocating IT resources.

43. In conclusion, I hope this paper illustrates how the GSBPM is intrinsic to the CSO's *IT Strategy 2010-2012*. The model is much more than a description of statistical processes. And, although often seen as belonging to IT, the GSBPM is also more than an IT framework. The GSBPM is a strategic management tool to influence our organisational culture, to help us to plan and implement statistical IT projects more effectively, and to keep a focus on the key principles which are central to the long-term success and business contribution of our IT strategy.

ⁱ “*IT and the Business – The CSO Experience*” – paper presented by Central Statistics Office, Ireland at MSIS 2009 meeting: <http://www.unece.org/stats/documents/ece/ces/ge.50/2009/wp.10.e.pdf>

ⁱⁱ Generic Statistical Business Process Model: www.unece.org/stats/gsbpm

ⁱⁱⁱ A paper presented by the UK Office for National Statistics at the 2009 conference on Modernisation of Statistics Production (MSP2009) gave a more detailed account of cultural issues and lessons learned, in the context of the UK statistical modernisation programme. There are many similarities, at a generic level, between the UK and Irish experience of implementing our respective change programmes. See: http://www.scb.se/Grupp/Produkter_Tjanster/Kurser/ModernisationWorkshop/final_papers/D_1_management_Penneck_final.pdf