Making IT Governance Work

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The growth of the use of information technology (IT) has been such that the successful running of Nottingham Trent University (NTU) is now dependent on its IT systems. As IT has become ubiquitous, managing IT risks and opportunities, as well as ensuring that the IT systems deliver strategic value and remain aligned to business requirements, have all become critical to business success. Managing these challenges, under the collective banner of IT governance, is a discipline that has emerged across the IT industry in recent years and is a partner to corporate governance and Internal Audit for ensuring that IT is well managed and remains aligned.

NTU, like many institutions, has been reviewing IT risks and opportunities. A small IT governance team has been established to introduce appropriate identification and management of controls to ensure that activities across the Information Systems (IS) department are correctly governed. Each of the identified areas has been tackled systematically to arrive at a solution that works for our organization. In doing so, we have identified what works and what does not and how our culture has changed as a result of the work undertaken.

NTU is a so-called “new” university, having been created out of the former Nottingham Polytechnic in 1992. The components of the Polytechnic that were brought together in 1970 can be traced back to 1843 with the opening of the Nottingham Government School of Design. Today the university is a vibrant modern university based on three campuses, with approximately 25,000 registered students and 2,800 faculty and staff members.

Business systems were being moved to electronic format in the late 1970s, and the university has been through a number of support structures for IT, with the current IS and Web Development teams being created at the end of 2004. Bringing staff together in one department and—for the most part—co-located has allowed university and IT managers to identify strengths, weaknesses, risks, and opportunities and to move to address issues.

Balancing risks and opportunities is the major driver for the introduction of IT governance at NTU. One significant risk identified is associated with the university culture, identified as “academic freedom,” which has translated into a perception that IT staff can “do what they like.” This has essentially arisen from poor management. Consequently, IT governance has been introduced to bring in systems of control, without repressing initiative and enthusiasm.

This ECAR research bulletin details the IS strategic approach to IT governance at NTU. It covers the practical matters related to adopting a model and then putting governance into practice. This highly applicable IT governance strategy is based on established models and measurable indicators of good practices across all necessary elements in higher education IT—for example, strategic alignment with institutional goals and management of human, technology, and financial resources, systems, projects, and services. It also addresses IT organization structures, policies, and decision making.
Creating any strategy requires understanding what needs to be achieved and then reviewing the possible approaches that will achieve the required goal. In researching IT governance it is important to review several models to identify which fits most closely with the overall organizational requirements. More important is to actualize the requirements for practical activity so that IT staff members have a practical understanding of what is required of them to achieve the desired behavior.

### Choosing an IT Governance Model

The classic text on IT governance by Peter Weill and Jeanne Ross is an ideal place to start to research the theory and understanding of governance in the IT space. It concentrates on the commercial sector and then adapts the proposed model for government and nonprofit organizations. It is, however, light on practical implementation. Consequently, NTU chose to look elsewhere for guidance. The first choice was material prepared by the UK National Computing Centre (NCC), which in a best practice guide provides a list of issues that need to be addressed:

- Creating a business case for IT governance
- Performance measurement
- Implementation roadmap
- Communication strategy and culture
- Capability maturity and assessment
- Risk management
- Supplier governance
- IT and Internal Audit working together and using COBIT
- Information security governance
- Legal and regulatory aspects of IT governance
- Architecture governance

NTU expanded this list by adopting the IT governance model published by the UK Joint Information Systems Committee (JISC), which provides both an appropriate IT governance model for a higher education organization (see Figure 1) as well as a toolkit that, for each governance topic listed in the framework, provides indicators of good practice and a self-assessment questionnaire. These tools enabled an introspective review of current processes and procedures.

Two other models worth considering are COBIT and the International Organization for Standardization (ISO) standard, “Corporate governance of information technology.” NTU reviewed COBIT but felt that for a small team in its infancy, the model was too complex.
Practical Implementation of the Governance Model

Having established an appropriate model and identified the areas to be tackled, the next task is to create a work plan. For NTU, with essentially a governance team of two members of staff dedicated to IT security, it was a case of identifying the low-hanging fruit (i.e., activities that would yield a quick win or some obvious improvement quickly) in order to establish the governance function and give staff confidence in tackling governance issues.

The appropriate topics to adopt when addressing IT governance will vary from institution to institution. By sharing the NTU experience in this bulletin, I hope to provide insights to help others get started. The four topics identified as low-hanging fruit by NTU in 2007 were risk and audit, finance, information security, and legal issues.

A review of IT capability, prompted by the appointment of a new director in IS, led to a two-year program (2008–2010) to improve departmental shortcomings. In governance terms, this added the following areas to the governance work agenda: capability maturity and assessment, performance measurement, architecture governance, supplier governance, culture, and leadership and management.
The approach has been formalized by writing an IT governance strategy, which has been used to publish both the work being undertaken and an identification of work needed in the future.

Resources required to cover the governance role were increased following a minor reorganization (in 2010) by adding service transition activities: software licensing, asset management, change and release management, and test and quality assurance.

The IT governance strategy needs to be maintained and has recently been reviewed and updated. NTU continues to identify areas for development—for example, we must develop a formal communications strategy both within IS and with the institution as a whole.

**Eating the Elephant**

Having adopted a model and decided on an approach, the task of implementing IT governance can still be daunting. There is a lot to do, and it is not always easy to distinguish the forest from the trees. Making IT governance work is about being able to take the model and identify and prioritize the practical tasks that need doing. Like eating an elephant, the best way is one bite at a time!

**Governance: Vision**

Vision in the JISC governance model is about ensuring that the institution and IT department(s) have appropriate information and IT strategies that are aligned to the overall strategy of the institution and that are reviewed and updated regularly. For NTU this means an information management strategy that is managed by the Information Management Steering Group (IMSG). IMSG members include senior managers who evaluate proposals for IS projects and agree upon priorities. This process sets the agenda for development teams in IS.

**Governance: Alignment**

Alignment brings an assurance that work in the IS department is in accordance with institutional aims. NTU fulfills this objective by ensuring that the right stakeholders sit on the IMSG and by appointing business relationship managers who act as the interface between IS and the business units of the institution.

**Governance: Assurance**

Assurance gives practical verification that the strategic alignment is indeed congruent with institutional objectives. It is also required to prove that the work of the department is well managed and that risks are being properly identified and managed. At NTU, assurance is provided through appropriate reporting by the IS director, both to the university senior management team and to the board of governors. In addition, Internal Audit provides assessment of appropriate adherence to standards, best practice, and internal policies and procedures, as well as performance and value.

**Management: People**

Managing people is clearly an important piece of the governance model, since it is the people we employ who enable the IT department to deliver on its mission and objectives. At NTU, the target is to follow best practice; however, significant shortfalls
were identified following a management maturity measurement exercise. Practical activities to recover from a poor position started with a sheep-dip approach of basic management training for team leaders and above—all team leaders and managers were trained, regardless of their previous management training. The training covered the basic aspects of management, with pointers to best practice and further opportunities for development. Practical outcomes included ensuring that each member of staff had a monthly one-on-one meeting with his or her manager; monthly team meetings; a departmental newsletter; tightening the personnel appraisal system; constructing training plans; and ensuring that every member of staff had an up-to-date job description.

The university runs an appraisal system (Performance, Development, and Contribution Review), but some IS managers had been only paying lip service to this. To remedy this, central filing of review documents and training plans was introduced to ensure that appraisals were happening regularly and were being taken seriously. Further, a department-wide development group was created to consolidate and review training plans, one outcome of which was the purchase of computer-based training (CBT) software and the creation of a quiet space for staff to undertake CBT activities.

On the strength of the activities introduced, it was also agreed to seek accreditation of the UK standard “Investors in People,” which is now owned by the UK Commission for Employment and Skills. The IS director holds quarterly briefings but is aware that general levels of communication are poor (many methods have been tried, but finding the ideal solution is still a goal).

Management: Technology

Since the technology underpins the outputs of the IS department, this too is a major piece of the model. Over the past five years or so, NTU has moved from a position where IT was effectively driving the business to a position where the roles are now reversed. The major reason for the change was a new university senior management team that presented an updated university-wide strategy in 2004. As a consequence, the IS department has had to create its own strategy and seek alignment with what the business is seeking to achieve. Some staff members have struggled with this as the culture change has reduced their ability to experiment with new technology; rather they have to focus on business requirements.

There has been a significant shift from technology-driven development to business-driven development, with significant increases in the number of developers, but also the introduction of formal project management and business analysis. In policy terms, elements of best practice have long been established (possibly because technology has been the historic focus), including an acceptable use policy and a security policy, though the long-dormant Information Security Steering Group has only recently been revived. The overview Disaster Recovery/Business Continuity plan was revised in 2005, but obtaining buy-in from server owners to write service plans, much less test them, has been an ongoing problem. Thanks to the enthusiasm of a new manager, this problem is now being addressed. The NTU model suggests that the institution should focus more heavily on its technology capacity plan, and that is currently underway.
Management: Finance

While proper financial management seems to be an obvious imperative, the luxury in the UK of working for a public sector organization has in the past often led to complacency. The recent recession and its impact on the public sector have highlighted the need for good housekeeping and effective management of the budget. At NTU, the IS department budget traditionally had been centrally managed. Recently, portions of the budget have been allocated to line managers who are now held accountable for their area’s budget and expenses. Budget tracking was introduced to reconcile expenditure-to-budget and also to improve budget profiling. Budget tracking identified significant problems, such as purchasing items for which there was no budget and budgeting for items that were never purchased (essentially creating a slush fund). The net effect of this for budget planning for 2010–11 has been a much more accurate budget in which every line item is justified. Tightening the IS budgeting process has raised the profile of IT expenditure within the university, and it has resulted in an increased budget of about 7% at a time when a 3% cut had been requested.

The financial pressure has also moved all the IT expenditure centrally, thus ensuring that central guidelines for compatibility are enforced and that equipment and software can be supported. The university has issued central purchasing guidelines for many years, and the financial regulations, which are rigorously enforced, provide for tendering for higher-value orders. A recent audit identified failures in supplier management, and action has been taken to identify suppliers and the contracts NTU has with them as well as to ensure that service level agreements (SLAs) are being maintained and to improve formal contact through regular supplier meetings. Significant projects are managed through the IMSG, although this group was not consulted with respect to the availability of funding and the allocation of resources. A new group controlling capital budgets is to be formed to ensure that proposed work has been properly analyzed with a business case showing a financial return, that a business lead has been appointed, and that project management resources are available.

Organization: Structures

Institutions seem to structure their IT teams either using a very centralized model or with degrees of devolvement and/or decentralization. Whatever structures are determined for supporting IT, good IT governance requires consistency of approach across the organization. At NTU, the pendulum between centralization and decentralization is currently very much in the centralized position. IS was created in 2004 from four university IT departments, one of which was only just over a year old (it had been created to centralize desktop support). To offset the potential for perceived “detachment” of a central group, we established Business Relationship Managers, whose role is to be the eyes and ears of the IS department in the Academy and Professional Services. This role works well, and it provides a working conduit for feedback in both directions.

Organization: Policies

When it comes to IT governance, there is a clear difference between generally accepted business practice (the normal way of doing things) and having policies and procedures documented and widely available. Documentation provides for both accountability and
consistency. At NTU five years ago, custom and practice prevailed, and it was never possible to guarantee consistency in policy or that the same task would be done the same way twice, with an agreed-upon level of quality. The IT governance team successfully discovered and articulated the prevailing practices, procedures, and policies. The team then arranged for them to be documented, approved by management, and published widely. Publication was the weakest element as a result of the absence of a document management system and simple search tool, but this is currently being rectified with implementation of a Microsoft SharePoint portal to create a team-based site with all the documentation in one place.

Organization: Decision Making

It is important, from a governance accountability perspective, to clearly articulate the processes and individuals responsible for decision-making. NTU traditionally had an IT steering group that focused on the allocation of capital funding, but there were no controls in place to ensure the money was spent on what it had been allocated to. Later, with the change to business-led IT, an IMSG has been set up with a focus on what a given proposed project brings to the business. This is now to be strengthened with a mandatory requirement for a sponsor and a clear explanation of business benefits. A standard template is in place for project proposals, and the end-to-end process is well documented.

Services: Systems

Having the systems architecture documented using design tools such as business process models, technology architecture models, data models, and so forth provides confidence that good practice is being maintained, and it also serves as a basis for integrating future developments. Ideally this could be an enterprise architecture where the business and system architectures are integrated. Having an exit strategy for significant investment proposals is also important. NTU proposed to address the governance in this area by creating a “Design Authority”—a small group of specialists with the role of creating an enterprise architecture and providing support to monitor compliance support development. A skeleton model to map the enterprise was created quite quickly, but the team lost focus when attempting to populate it, possibly because the staff involved were focusing on the technology rather than the business. In practice, this has been a costly experiment, as the work undertaken has effectively been discarded following members of the team leaving the university, and the work will need to be restarted when time becomes available to do so.

Services: Projects

Adequate project management is key to the success of new developments that will move the institution forward. The target for projects is always that they be delivered on time, on budget, and to an agreed-upon level of quality. At NTU the traditional approach was that everybody could be a project manager, an ad hoc approach was acceptable, and so long as the target date was more or less met, things were fine. The change to IT being business-led rapidly exposed the shortcomings in this model, since all three criteria were consistently missed! The first thing to do was to define what constituted a project (five or more days of work and/or the allocation of capital funding) and to agree on a methodology. NTU chose to train project managers in PRINCE2, a process-based approach to project management, but to only adopt those elements of the PRINCE process that are applicable.
to our organization. Reporting is important to ensure that the projects stay on track (or that scope changes are well documented and properly agreed upon), and also to provide evidence that risks and issues are being well managed. NTU uses project boards for high-level control, but weekly or monthly highlight reports (the frequency depends on the complexity of the project) are circulated to the IS management team.

**Services: Service Delivery**

Institutions will require that information systems and services are properly managed on a day-to-day basis. An obvious way of doing this is to adopt a formal framework such as the Information Technology Infrastructure Library (ITIL) concepts and practices. Absent these standards, adequate documentation is needed to provide the appropriate assurance. NTU made the decision to adopt ITIL some years ago but essentially had a false start when the commitment to ITIL was made by an individual manager but was never properly owned by the whole IS management team. This led to a significant setback as the ITIL brand effectively became tainted and a delay was required to let bad feelings mellow. With lessons learned, a management commitment with adequate resourcing has allowed the development of formal processes for incident management, problem management, change management, and asset management, as well as the introduction of a configuration management database and the formal provision of a testing and quality assurance service. The lack of provision of a formal service catalogue is seen as a serious weakness, as is the absence of formal reporting of how the services are performing. Tools have been procured to help with this, but NTU seriously underestimated the time it would take to implement these. NTU has traditionally shied away from SLAs, essentially because internal penalties are unenforceable. The absence of SLAs, however, prevents assessment of performance against targets, so this will be rectified in the future. The director of IS has been conducting a user satisfaction survey, and IS now has three years’ of data to use for making service improvements.

**What It Means to Higher Education**

Institutions are paying increasing attention to identification and management of risk in the IT space, especially in response to Sarbanes-Oxley and Basel2. The net effect has been a heightened awareness of our institutions’ dependency on IT systems. Ensuring that IT systems are fit for the purpose, are well managed, and can be relied upon means that we must undertake more effective measures to identify that appropriate strategies, policies, procedures, and controls are in place to bring risks and problems to our attention. This, then, is IT governance in a nutshell. Higher education should pay attention to how the commercial sector is addressing the requirement for governance, even if our sector often operates under different conditions. That the ISO has introduced a standard for IT governance indicates the growing importance of the area.

For U.K. universities and U.S. universities alike, a current concern is pressure on funding from central government and an ongoing discussion about fee income. This, with the ongoing financial climate, is causing institutions to review how they do business and what is important for survival. NTU senior managers have identified the key role the IT systems play—and will continue to play—in taking the university forward. They now expect the principles of IT governance to be in place to ensure that IT remains strong.
Key Questions to Ask

- To what degree is our IT governance model based on industry standards related to technology architecture, organization structure, project management, service delivery, and so forth?
- How often do we measure the effectiveness of our IT governance practices?
- How effectively does our IT governance structure reflect the interests of all stakeholders in our institution? What, if anything, should be improved?
- What are the values of our IT department? Will they enable the delivery of systems at the level that senior managers expect?

Where to Learn More

- JISC Information Systems Management & Governance Project (ISMG), [http://www.ismg.ac.uk/](http://www.ismg.ac.uk/).
- University of Victoria Governance White Papers, [http://www.uvic.ca/systems/about/](http://www.uvic.ca/systems/about/).

Endnotes

3. JISC Information Systems Management & Governance Project (ISMG), [http://www.ismg.ac.uk/](http://www.ismg.ac.uk/).
6. Investors in People, [http://www.investorsinpeople.co.uk/Pages/Home.aspx](http://www.investorsinpeople.co.uk/Pages/Home.aspx).

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