

Against the Odds: Managing the Unmanagable in a Time of Crisis

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Abstract. Information technology systems at the Greek Ministry of Finance could be the ideal tools for fighting widespread tax evasion, bureaucratic inefficiency, waste, and corruption. Yet making this happen requires battling against protracted procurement processes and implementation schedules, ineffective operations, and rigid management structures. This experience report details some unconventional measures, tools, and techniques that were adopted to sidestep the barriers in a time of crisis. The measures involved meritocracy, IT utilization, and management by objectives. Sadly, this report is also a story (still being written) on the limits of such approaches. On balance, it demonstrates that in any large organization there are ample opportunities to bring about change, even against considerable odds.

It seemed like a good idea at the time. In 2009, Greece's new government, instead of staffing the ministries' Secretary General positions through the, commonly, opaque political appointments [18, p. 79][19, p. 157], it provided a form to submit online applications. As a professor of software engineering interested in public service, I decided to apply for the position of the Secretary General for Information Systems at the Ministry of Finance, a position that was in effect the Ministry's CIO post. I reasoned that by serving in this position I could apply in practice what I taught to my students; in this case how to provide high quality eGovernment services in an efficient manner. After a couple of interviews and a few weeks of waiting time I started serving, for what was to be a two year term, at the General Secretariat for Information Systems (GSIS).

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GSIS develops, runs, and supports the information systems used at the Greek Ministry of Finance. The most important of these at the end of 2009 were TAXIS, the software used in all of 300 Greece's tax offices, TAXISnet, a web application that taxpayers use for electronic filing, and, ICISnet, which supports the customs agencies. Another significant body of work at the time involved the keying-in of tax filing forms, the calculation of tax returns, and the printing of tax assessment forms and payment notices (about 15 million documents per year). In addition GSIS supported diverse tax compliance actions, mainly by running electronic tax compliance checks. Finally, GSIS, contributed input for fiscal policy making in the form of statistical data and ad-hoc calculations.

GSIS reported to the Minister of Finance and was supported by the administrative services of the Ministry of Finance. This meant that staff dealing with GSIS's personnel and procurement were not reporting to me, but to the Ministry's General Secretary. Oddly, GSIS consisted of a single General Directorate. This comprised of three directorates dealing respectively with software, hardware, and data entry. Unlike many other Greek civil service departments, GSIS was lucky to be housed in a modern secure building. In 2009 it employed about 1200 permanent and temporary staff, a number which declined to less than 950 during my tenure. Approximately 135 employees had a university degree, 120 had a technical education degree, while the remaining 620 had a secondary education degree. External contractors handled most of the work associated with the development and maintenance of GSIS's information systems.

Soon I realized that GSIS was in a crisis. The implementation of key IT projects was years behind schedule, some services provided to taxpayers were based on fickle outdated technologies, a large proportion of the staff were not sufficiently qualified or trained, the employees' union demanded a say on the service's operational matters, morale was low, and some managers were unable to deliver the required results. Even worse, I soon discovered that, I did not have at my disposal basic tools of management, namely the formal authority or practical means to hire and fire, promote and demote, reward and discipline, outsource and develop in-house, or reorganize hierarchies. In short, I was in a position of power without authority.

As if those problems were not enough, soon Greece's government debt crisis broke loose [11, 17], bringing the Ministry in the eye of the storm. A few months later, it was obvious that GSIS would have to deliver dramatically more and better results with fewer personnel, on lower salaries, with a reduced budget. As the Secretariat's head I had to deliver those results while battling with entrenched bureaucratic inefficiency, inter-departmental intransigence, clientilism, political patronage, drawn-out procurement processes, and an ineffective legal system.

To overcome these problems I targeted the obvious: better utilization of the organization's human capital, exploitation of information technology, management by objectives and results, and improvement of the organization's processes. Unfortunately, the existing Napoleonic state institutional framework — the formalistic, legalistic, and bureaucratic way in which the Greek public administration works [19, pp. 153, 164] — did not provide me with the necessary tools to

implement the necessary changes. Consequently, I had to resort to the unconventional techniques detailed in this experience report.

1 Meritocracy

When I started serving at GSIS an experienced colleague told me that 95% of my performance would depend on the people I would select to work with. As time went by I realized he was 100% right. Unfortunately, the Greek public administration lacks well established practices and procedures that guarantee meritocracy. Therefore, meritocracy always depends on the personal choices of all those who serve in management positions — from the Prime Minister to the directors to the section heads.

1.1 Office Staff

Breaking a tradition where department heads would appoint as their advisors former colleagues, acquaintances, friends, or even nephews, I decided to staff the five advisor positions, which were available for my post, through the “OpenGov” web application process I had previously used to apply for my own post. There I published the criteria for the positions and a web form in which applicants had to complete extensive details regarding their knowledge and skills. With the luxury of being able to choose among 750 submitted resumes, I was able to form a team of very capable, hardworking professionals, with valuable work experience in key positions in Greece and abroad. Because applications were submitted electronically through a form with keyed fields, it was easy to evaluate the applications with a small Perl script I wrote for this purpose, and determine those we¹ could call for an interview.

I interviewed the first batch of the short-listed candidates on my own. Then, following an unconventional practice followed by some tech-startups, I had the new members of my team participating in the process by interviewing the following candidates. After each interview round our budding team held a meeting to discuss its results and select the new members. These meetings helped gel our team together, and bring on board staff that was compatible with its technocratic orientation. There were times when team members disagreed with my view. Through our discussions I witnessed in practice how in some contexts a group’s performance can surpass that of each group’s member [12].

The choice of one of our team’s members was particularly interesting. The application came from an existing GSIS employee. I looked for her, and found her sitting in front of an empty desk. I asked her why she applied to work in the department she was already placed, and what I learned was eye-opening. She had returned from secondment to another organization two weeks earlier, and no one had bothered to assign her some work to do. So she applied to join our team in

¹ I use the plural to refer to the team work performed by the staff in my office and permanent GSIS staff. Without this team effort, none of the things I am describing could have been achieved.

a bid to become productive. She quickly joined us, and as a top graduate of the National School of Public Administration with plenty of experience in managing EU-funded projects, she proved to be a valuable team asset. She became the contact point of our office with the rest of the public administration, handling responsibly and professionally the tens of requests that arrived at my office each day. When I saw her diligently working at 10:00 p.m. on folders overflowing with arcane documents, I couldn't help but wonder how less productive our team would be if we had not published that open call for its staffing.

A few volunteers who, having completed a successful career, were willing to work pro-bono to help get Greece out of the crisis, complemented our team. I was surprised to find out that it was not formally possible to have these persons join me as advisors without paying them a salary. In a country in a crisis and in a world where volunteer organizations, activists, and NGOs often address problems more effectively than governments, the Greek state was putting barriers in the path of volunteers who wanted to help their country. For reasons of form and substance I was unwilling to have people work in my office without corresponding institutional coverage. Eventually, we solved this issue, by creating an advisory working group which comprised permanent staff members, my advisors, which were hired under a fixed-term contract, and these volunteers.

1.2 Staffing Through Open Calls

Having created a culture of meritocracy in my office, we looked how we could extend it throughout the Department. Initially the picture looked bleak. The department's management positions were staffed through a formalistic, bureaucratic, inflexible, and ultimately ineffective system, which used as its main criterion seniority rather than job qualifications, evaluations, and experience [19, pp. 162–166]. To overcome these restrictions we utilized the concept of working groups. A working group and its chair could be setup in a day through a simple formal decision by the Department's General Secretary. Indeed, at GSIS there was already an established tradition of such groups, who were often also receiving extra pay for their services. Sadly, they were often staffed through opaque procedures, sometimes taking into account political party alliances.

Based on the institutional framework of working groups we issued a number of open calls to staff the ones required to complete specific tasks. To stress that the selection was based on merit, we ensured that each call, the skills required for participating in the group, and the decision for the group's composition, were published on the Department's intranet. In the beginning we faced pervasive distrust; some advocated in water-cooler discussions that this process was merely a smokescreen to continue the party games of the past. However, the cynicism subsided, when people saw that some of the appointed working group chairs, could not have been selected based on their party alliance, and that therefore the appointment process was truly meritocratic. (Sadly this started a reverse grumble from people who believed that some positions should be preferentially staffed by people with strong political party credentials.) In total within two

years we published and completed 38 open calls for working groups and their chairs.

The meritocratic staffing process I described kick-started a virtuous cycle involving the substantial increase in the engagement of young, highly qualified executives in the working groups, especially in the demanding positions of project coordinators. What drove this cycle? I realized that in the past professional, worthy staff members would avoid their involvement in committees and working groups, because they did not want to be associated with whichever political party was in power at the time. When those people realized that staffing was decided on merit, not only did they participate, but they also urged other colleagues to come forward, declare their interest, and work.

The pride of people who were selected on merit to chair working groups or, later, when it became possible, to be appointed in formal management positions, was revealing. A year after I took office, it was a joy to walk around the building late in the evening and find section heads, team coordinators, and managers working hard to meet a deadline or finish without interruptions work they had not found time to complete during the normal working hours. However, I also felt guilty because I lacked the means to financially reward these people who were working overtime to move the Department forward. Wages were set centrally across the board based simply on seniority. The few funds that were available for overtime pay (each year arriving months late) were a drop in the ocean compared to the actual time these people worked. So, again, I resorted to unconventional means: public recognition of those who put the extra effort, invitations of key people to meetings that I set outside the organization's formal structure, walks by the office of people who worked late for an informal chat, and even the allocation of parking places. As for the overtime payments, we stopped dividing them equally across all the Department's employees, which was until then the custom, and insisted on having these nominal amounts payed to those who actually worked a lot harder than others.

1.3 Staff Evaluation

Another unconventional initiative we undertook in the field of human resource management, involved the genuine assessment of staff. Sadly, this did not fare as well as the other initiatives. The existing way in which civil servants were evaluated was hopelessly inadequate. (See [18, p. 78].) All employees received top marks in their mandatory periodic evaluations. This practice demoralized the best employees, and also provided fertile ground for cronyism to flourish. With the help of an external volunteer advisor, who had extensive experience in managing large organizations, we designed and implemented a 360-degree appraisal [2] for staff working in my office. Under this appraisal scheme employees are evaluated by their superiors, their subordinates (if any), as well as their colleagues working at the same level of the administrative hierarchy. The assessment forms we prepared for the evaluators had fields where one had to describe the work and additional responsibilities of the evaluated staff member, comment

on his or her work performance, and identify areas where there was room for improvement.

For the supervisors we designed a more detailed form where they could summarize the information from all evaluators, and rate the staff member's work performance factors (administrative skills, written communication, verbal communication, problem analysis, decision making, delegation of work, work quantity, work quality, staff development, compliance with policies and procedures, and technical ability), as well as personal performance factors (initiative, perseverance, ability to work with others, adaptability, persuasiveness, confidence, judgment, leadership, creativity, and reliability). According to our plan, supervisors would then discuss with each evaluated staff member his or her overall performance, areas for improvement, and his or her career plans. Finally, after this debriefing, the two parties would add to their form any additional comments they might have and sign it.

We started the evaluation process for staff working in my office, hoping that some of the high-level managers who would receive the appraisal forms (as associates of my advisors or as my subordinates) would be take the initiative to adopt this procedure in their directorate or section. Sadly, this did not happen. I did not press the issue further, for I believe that strict instructions and procedures are effective only for performing simple standardized tasks, while more ambitious results (such as the adoption of a work culture based on appraisals) can be achieved only through education, leadership, and appropriate incentives. Moreover, two years after this initiative an academic colleague who specializes in human resource management explained to me that 360-degree appraisals are only meaningful in exceptionally mature and well managed organizations, so in this case we were probably over-ambitious.

Interestingly, I never got back my own evaluation forms which I gave to my fellow general secretaries and my superiors. This made me reflect on the upward struggle a widespread introduction of performance appraisals would face. My pessimistic view was further strengthened when legislation passed in 2011² introducing performance-based pay for civil servants was put on hold until December 31st 2016 with new legislation³ passed just a year later.

2 IT Utilization

The performance of GSIS in its IT-related tasks was disappointing for an organization that considered itself the crown jewel in Greek public administration IT service provision. Procurement of hardware and software systems typically took years. For example, a new data center project had commenced in 2002 and was still ongoing in 2010. As a result, there was at the time no disaster recover site. If the existing data center got destroyed by a fire or an earthquake, many critical government revenue management functions would be completely disrupted.

² Greek law 4024/2011, article 19. Government Gazette Issue A 226/27-10-2011.

³ Greek law 4093/2012, article 1, paragraph 3.1.2. Government Gazette Issue A 222/12-11-2012.

Furthermore, GSIS lacked a management information system, a human resource management system, as well as systems to perform tax compliance checks and organize tax audits.

These shortcomings were mainly caused by the sluggish bureaucratic procedures that were in place for public procurement and EU-funded projects. To reach a point where a project's procurement contract could be signed, the project had to jump through dozens of hoops and obtain as many signatures — in a theoretically simple case we counted 28 steps. In addition, during the tender process rival contractors typically appealed against any decision made by the public administration through the judicial system, where cases lingered for months. Consequently, vital projects for our work were years away from completion. Soon I concluded that from the time the public administration established the need for an information system it would take at least five years to put it into operation.

As if those problems were not enough, the projects' EU funding often resulted in unworkable specifications. Agencies tended to inflate and gold-plate the specifications, because, first, the agency procuring the project had no motive to keep its budget under control, and, second, it did not know and when, if ever, it would obtain again funds for the project's enhancement. These inflated and, due to delays, outdated specifications resulted in overly complex projects that were a pain to implement, difficult to sign-off, and a challenge to use productively. Adding insult to injury, in some extreme cases, an agency would find itself obliged to deploy the useless system it had ordered in order to avoid having to hand back the funding it had obtained for its implementation. The agency would thus find itself worse off compared to the state it was before it had ordered the system.

The unconventional, guerrilla, methods we employed to solve these problems involved adopting *open source software*, utilizing *agile development methods* to develop software in-house, and *empowering the IT market* to develop solutions through the specification of open standards.

2.1 Open Source Software

Open source software [1] can be freely downloaded, adapted, redistributed, and used. Although a large percentage of this software is developed by volunteers and academics, its quality is often comparable to that of proprietary offerings developed by large companies. Some well-known open source software systems, like the Linux kernel, the Python and PHP programming languages, and the PostgreSQL and the MySQL relational databases are powering critical functions of organizations like Google, Wikipedia, and Facebook. In addition, millions of people around the world are using open source products, such as the Android platform for mobile phones, the Firefox web browser, and the Libre Office suite.

For us at GSIS, the main advantage of open source software was not the ability to read and modify the software's source code, but the fact that we could download and install it for free with a click of the mouse [21], without getting entangled into nightmarish public procurement procedures. Another critical factor concerning the adoption of open source software is the availability of the required

technology skills and services [7]. Thankfully, GSIS, as an IT organization, had these available in house.

One of the first systems we installed was MediaWiki; the software driving Wikipedia [4]. This implements a wiki [13], a system that allows anyone to create linkable web pages (articles in the case of Wikipedia), and all others to read and change them. At GSIS we configured the wiki to run on the organization's intranet, so that it could be accessed only by staff members. By developing a few templates we implemented, in less than a month, a bare-bones human resource management system and a repository for organizational knowledge.

Specifically, we asked all employees to create their own wiki page which should contain basic data about themselves: their name, office, department, telephone, responsibilities, specialization, and skills. For some of these elements we specified how they should be coded through MediaWiki templates and predefined "categories". For instance, an employee could specify fluent knowledge of English or experience with SQL. Categories grouped pages together according to their attributes in multiple dimensions. This allowed us to query the wiki for things such as the employees working in a department or directorate, those who could program in a specific computer language, or those who were experienced tax auditors.

At the beginning of my tenure at GSIS I realized that meeting minutes were only kept for committees that were formally set up, and those minutes were only kept to satisfy the letter of the committee's mandate. In almost all informal meetings, the keeping of minutes was considered an inconvenient luxury. To change this situation, we decided to document the agenda and the minutes of all informal meetings on the wiki. In the first meetings I kept the minutes. This gave me the opportunity to design a template page containing the key elements that should be recorded for each meeting: the place and time it was scheduled, the participants (with links to their personal page on the wiki), the agenda, and the action items. Through the wiki's affordances it was easy for the same page to serve both as the meeting's agenda (participants could easily add items to it), and for the keeping the meeting's minutes (we copied the agenda, changing specific elements into action items; again participants could review and correct the minutes with a click of the mouse). Through the templates we adopted each meeting was automatically categorized (e.g. "Production Board", "Security Team", "SG Office"), and all staff members could read the minutes of all meetings. Open access to all minutes on the wiki (172 entries by the end of my tenure) promoted the administration's transparency, reducing power games with the selective dissemination of information, and cutting down misinformation and false rumors concerning decisions that were taken in the past behind closed doors.

Initially, the introduction of the wiki was met with skepticism. Some claimed that the ability to change any of its contents would lead to misrepresentations and vandalism. Soon, however, it became obvious that employees were considerably more mature than what the naysayers thought, for no such cases occurred. If there was a problem, this was that staff members were reluctant to correct

each other's pages, rather than that too many inconsiderate changes were made. Certainly, the wiki's technology helped us in this regard, because MediaWiki keeps a full record of each page's changes and the users associated with them.

It was harder to establish incentives for participating in the wiki. I felt that the administrative enforcement of its use would be counterproductive, for it would lead to formal compliance, rather than embracing the spirit of open cooperation I wanted to promote through its adoption. The wiki's technology gave us a simple incentive mechanism. Links to pages that do not exist on the wiki (e.g. the personal pages of a meeting's participants) are shown in red instead of blue, indicating to all that specific staff members had not yet created their wiki page. Next we established as a rule that those wishing to participate in an open staffing call should have a personal wiki page. This requirement was in full harmony with the spirit of transparency: those wishing to enjoy its advantages should abide by its rules. Finally, to help employees who had difficulty in using the wiki technology, we established a group of "Wiki Samaritans": eager and cheerful executives who undertook to assist those who had trouble using it. Through these means within two years of my term the wiki grew to cover over 2,500 pages of information.

Another open source software we installed and used was *Redmine*, a distributed project management tool. *Redmine* allows the specification of a project's tasks and the relevant deadlines. Based on the data entered, it will show schematically each project's progress, either as a percentage or through Gantt charts. Thereby, everyone involved in a project's implementation or depending on it could see its progress. The deciding factor for progressing in our many projects was the hard and methodical work of their coordinators. On top of that *Redmine* brought transparency, accountability, and discipline in project management, highlighting the progress made by good coordinators as well as action items that needed our attention.

The fact that we could download *Redmine* at no cost, without going through a public procurement process, allowed us to deploy it across all GSIS within a few days. As a counterexample, another government body decided, after a thorough study, to obtain a (much more sophisticated) commercial project management system. In order to sidestep the procurement delays it utilized a (supposedly) flexible way to fund project preparatory work through so-called 'technical assistance' EU funding. These efforts began in June 2011 with support from government officials at the highest level. My understanding is that five months later the procurement process was still underway.

2.2 Agile Software Development

It is unrealistic to expect that all the software requirements of a large organization can be met through open source software. Bespoke software development is often needed to satisfy specialized requirements. In the case of GSIS a vital system for combating tax evasion and improving compliance and revenue collection was an audit targeting, assignment, monitoring, and optimization system called "ELENXIS". The project was in the works since 2005. By the time I started

my term, the system had begun, after many delays, a painful period of limited pilot operation. Another system, crucial for designing tax policy and improving the functioning of the tax administration, was a management information system (MIS). Its development with EU funding was approved in 2007, but the corresponding request for proposals had not been published until 2009.

To solve these problems we turned to agile software development [6, 15]. Our aim was to bypass the prevalent heavy, bureaucratic, and formalistic procurement procedures, and see how we could quickly deliver software that would meet the needs of the citizens and the Ministry's staff.

Unfortunately, the principles of agile software development are at odds with the way government IT projects are traditionally implemented in Greece. I presented the case for agility to the board of the Federation of Hellenic ICT Enterprises, but got a hostile reaction. We were thus saddled with inflexible practices and contracts for large IT systems like TAXIS, ELENXIS, and the MIS. For instance, for a (theoretically) simple change of the VAT rate a contractor asked to be paid for three effort months. We therefore tried to see how we could specify the use of agile development practices in new funded projects, and also how we could develop software with agile methods in-house by utilizing GSIS staff.

We upgraded a small group of GSIS developers, which was developing for years quietly useful and functional software into an "agile development team". Our goal was for this group to implement simple but effective solutions following Pareto's 80-20 principle under which the 80% of a system's functionality can be implemented with 20% of the required effort. We worked in the same way with staff from the Department's Applications unit and also with advisors who were seconded to my office. Thus, until the 25 million euro ELENXIS project was fully functioning, we ran simple tax compliance queries on the existing databases of GSIS. As an example, one such check would verify whether taxpayers had declared in their tax form the income that partnerships indicated they had paid to their partners. (In many cases we found that, a single digit tended to be dropped with surprising frequency: a 101,345.00 payment would be declared as 11,345.00 income.)

Then the agile development group built within a month a simple application that would assign the cases to the corresponding local tax office and track their progress. (More details on this in Section 3.1.) Furthermore, in place of the MIS, which had not yet been ordered, we implemented a simple system where anyone could enter the title, parameters, and SQL statement corresponding to queries that the Ministry's departments often asked us to run on our databases. A web-based front end would show the available queries, allow authorized users to run them, and offer the results as a downloadable spreadsheet for further processing. This simple application reduced the workload associated with running many boilerplate queries, allowing the staff to concentrate on the increasingly more demanding requests we were receiving.

2.3 The Government as a Regulator Rather Than a Customer

Other systems required bespoke development at a scale too large for them to be implemented in-house with GSIS's limited resources. In such cases, to avoid the quagmire of public procurement, we looked for ways to utilize the local IT market, bypassing the deadly embrace of the government with large EU-funded projects. The unconventional approach we developed and implemented involved limiting the government's role to that of a regulator. Under this approach we would specify technology standards and rules on how specific processes were to run, allowing the market to come up with systems that satisfied these requirements.

We found that through this approach IT companies would swiftly deliver cheaper and better solutions than what we could expect by formally procuring IT systems from government contractors. Two interesting examples involved the implementation of the Single Payment Authority and the use of the Ministry's registry data.

The Single Payment Authority, part of an effort to modernize the public administration, aimed to consolidate fragmented employment practices by disbursing centrally the salary payments of state employees [8, p. 48]. Up until 2010 these were paid by hundreds of bodies scattered throughout Greece [18]. These bodies ranged from universities and hospitals to municipalities and ministries. The wide dispersion of bodies that paid state employees made it difficult to centrally monitor these costs, which in 2010 amounted to 27.8bn euro (24% of the General Government's expenditure) [10, p. 137]. In addition it was suspected that the laxity of controls regarding how small entities paid their salaries left space for mismanagement and graft.

The original plan regarding the Authority was to implement a single payroll system covering the entire government. This would involve collecting the paper files of half a million employees in a central location, entering their data into the new payroll system, and then calculating and paying the salaries through that system. A new general directorate was setup with the necessary directorates and departments, and even offices were rented in a posh business district for housing this new body. Unfortunately, the requisite payroll system did not exist, and, by taking into account the procurement time that was typically required for such system, it would take at least five years to put it into place.

Instead of this grandiose plan we proceeded as follows. First we defined and published technical specifications on how each body's paymaster (for instance the one responsible for the Ministry of Agriculture) would send to GSIS each month a file with the payment details for all state employees that were working there. The details included the employee's name, payment amount, tax and social security identification numbers, withheld amounts, bank account number, and other similar fields. The file format was XML-based and the specification was defined through a corresponding schema file. This allowed the body's technicians to easily verify whether the files they had created were formatted in the specified way. If, for example, a record lacked the beneficiary's social security number, the problem would manifest itself before the file was sent to GSIS. This minimized the communication problems with the scheme's stakeholders.

In addition, we developed in-house a small application that would receive files uploaded over the internet, verify their contents, and prepare payment instructions. Finally, we collaborated with the company that runs the interbank payment system and the state's General Accounting Office to arrange the flow for the beneficiaries' payments. In this way in less than a year Central Payment Authority was managing payments for about 3700 bodies and paying 570,000 state employees.

The decentralised manner in which the system was developed allowed those who were actually running things quickly find the best and cheapest way to comply. Each body formatted its data through whatever way it deemed expedient. Some modified their payroll application in-house, others collaborated with the application's vendor, while smaller ones adopted simple ad-hoc solutions, which involved converting existing reports into the required format. Through a web search we even found a small remote company offering an application that would adapt the payroll data into the Single Payment Authority's format for just 120 euros.

This decentralized implementation did not meet all the requirements of the original system regarding of audits that could be made. However, in practice it turned out that just five simple but effective controls that the new system could implement (payments from multiple bodies, exceeding the statutory maximum salary, salary payments from the private sector, tax filing, and payment arrears to the state) exceeded the throughput capacity of the competent⁴ audit service. This demonstrated the agile programming YAGNI (Your Aren't Going to Need It) principle [5, p. 18].

The second example where the GSIS collaborated with the local IT market as a regulator concerns the distribution of the Tax Authority business register. The online availability of the registry could greatly simplify transactions, saving time and money. For example, when a business needs to issue an invoice, instead of typing in all the counterparty's details (name, address, phone, occupation), it could simply fetch them from the register using the counterparty's tax identification number as a key. The easy availability of this data could also reduce the plague of fake invoices, because anyone receiving an invoice could easily check the details written on it as well as whether the listed company was still in business.

To aid the registry's distribution GSIS could implement bespoke applications, and provide them to the taxpayers. This had been the case in the past for applications that filed various tax forms. Instead, we offered the registry's data as a simple web service, which was implemented in a few days. At the same time we published the web service's specifications and issued a call for volunteers to develop clients as open source software. Within a couple of weeks we had at hand clients for a diverse set of platforms and operating systems, including apps for

⁴ In this work the term "competency" refers to the concept deriving from the principle of legality. A competency prescribes in great detail the legal ability provided to an administrative body to enact legally binding rules, to contribute to their enactment, and to undertake physical operations [23, 18]

cell phones. Companies that developed accounting and ERP software were soon using this functionality, as were web pages that were setup for this purpose. Sadly, this service ceased being offered without a warning in mid-2013, proving the ambivalent relationship of the State's bureaucracy with public data.

3 Management by Objectives

With increased agility and effectiveness in the areas of people and IT management, we tried leveraging our improved capacity to achieve higher level, fiscal, objectives. This was an audacious move, for we were venturing at the limits of our legally prescribed competences, into areas tainted by chronic ineffectiveness and, possibly, graft. As we shall see in the examples outlined in the following sections, not all ventures had a happy ending.

3.1 Handling Tax Compliance Checks by Regional Tax Offices

In Greece widespread tax evasion [3] and a large shadow economy harm the state's fiscal management, horizontal and vertical equity, and economic efficiency [16]. Although the competent bodies for tax compliance at the Ministry of Finance were the General Secretariat for Tax and Customs Affairs and the Economic Crime Unit, from the beginning of my tenure I felt that GSIS could help significantly in this area through the use of IT. Perhaps naively, I believed that reducing tax evasion would be relatively straightforward, because we could swiftly locate thousands of suspect cases through electronic tax compliance checks, and send them off to the regional tax offices for further processing. We therefore activated a previously legislated⁵ high-level committee to plan electronic tax compliance checks, and started executing them. We regularly met as a committee to discuss and plan ideas for tax compliance checks. However after a few meetings I began to worry. What had happened with the cases we sent for processing? I was asking the departments who should be overseeing this processing, but I was not getting any concrete answers. I was told that the processing was proceeding "without problems", and bringing in the "expected revenue". However, nobody could tell me the number of cases that had been processed and the amount that was collected.

To obtain a more accurate picture of this process our agile development team developed a small web-based application that would assign the thousands of suspect cases to specific regional tax offices and ask them to process them. For every case that was closed (e.g. by calling in the taxpayer to file an amended declaration and pay a fine), the tax officers had to fill into a form the additional revenue received from taxes and fines. Through this application we could centrally monitor with objective measures the progress on the case workload and also the efficiency of each compliance check. We could also verify that the cases were being processed at a rate that would not result in a backlog buildup. The

⁵ Greek law 3763/2009, article 12. Government Gazette Issue A 80/27-5-2009.

data we obtained from the application was eye-opening: apparently many regional tax offices were not processing any cases for long periods of time. After a few months the system was operating the (theoretical) workload processing period had climbed to 175 working days against a mutually agreed target of 60 days.

With concrete figures at hand I was able to do three things. First I could present the situation to the Minister of Finance, so that he could mobilize the respective tax office. However, I quickly realized that he was facing at the level of the Ministry the same problems I was facing at GSIS: he did not have at his disposal the necessary management tools, must crucially control of the heads of the regional tax offices. Therefore, the second step involved using publicity to pressure the tax office heads to handle the cases they were assigned. We created a process that would automatically publish on the web each tax office's progress in the handling of the cases. Thus citizens could see how many cases were assigned to their local tax office, (e.g. 1457 cases to an office in a leafy Athens suburb), how many the office had closed in the previous day (zero for this tax office on 2001-04-05), and how much revenue it had collected (for instance, 24,808 euros for a sea-side suburb tax office on the same day). Similar figures showed the cumulative results during the period the system was operating.⁶ Finally, as the third step I wrote a small script, which at the end of each business day sent a personal email on behalf of the Secretary General for Tax and Customs Affairs to each tax office head with details of the office's progress on that day. The email was copied to the Minister, the competent Deputy Minister, and the corresponding General Directors. This pressure seems to have paid off, because, according to the data we collected through this system, during 18 months of its operation 690 million euros were collected by closing 260 thousand cases.

3.2 Performance of Regional Tax Offices

With the audacity that arises from naïveté, I thought that management by objectives, which could be centrally monitored from the GSIS databases, could be used for improving the overall performance of the tax administration. For this purpose we studied the effectiveness of the regional tax offices based on a small set of metrics. We found what many suspected: things were not working as they should be. According to the study only 1% of the fines imposed by the Financial Crime Unit were eventually collected by the tax authority, 30% of government pensioners did not declare their entire pension in their tax returns, while no one was monitoring the effectiveness of tax compliance checks. The study also found that just 24 out of a total of 300 local tax offices were responsible for collecting 71% of revenue (another manifestation of the 80-20 rule). Furthermore, the study recommended to measure and monitor a few key performance indicators for each major regional tax office:

- the revenue collection cost,

⁶ Sadly, the corresponding web pages are no longer active. However, a representative subset has been archived at <http://www.webcitation.org/6HfWwq87N>.

- the efficiency in closing suspect cases regarding tax compliance,
- the revenue collected from closed cases,
- the gap between collected revenue and the corresponding target,
- the number of temporary audits performed per employee,
- the progress of temporary audits,
- the percentage of the fined amount that was actually collected,
- the ratio of foreclosures to taxpayers in arrears, and
- the level of tax compliance evidenced through the number of suspect cases.

Interestingly, regional tax offices were traditionally monitored only based on the revenue they collected, as if they were a small corner-shop.

Using the infrastructure of the TAXIS information system, which supported most functions of the regional tax offices [22], we implemented a process to derive each month the necessary data, and compute the key performance indicators. Because tax administration was not keen on adopting such sophisticated indicators, preferring to keep on monitoring performance based solely on collected revenue, we adopted again the approach of publishing the figures on the web, hoping to pressure under-performing tax office heads to improve their operations.⁷ The reaction was immediate: tax officers, union leaders, and tabloid press blasted that the information was incorrect, fragmentary, and did not reflect reality. A key argument was that it was unfair to point out that major offices had not conducted any audits within a month, because there were no auditors in their staff. Those shooting the messenger failed to grasp that the KPIs were useful exactly for highlighting and resolving such problems.

The moral of this exercise was that, while there is a lot that can be achieved by publishing metrics as open data and by targeting concrete objectives, not all problems can be addressed through unconventional means. A couple of years later, partly in response to the outlined problems and a corresponding proposal [20], an independent but accountable tax administration body was set up [9, p. 100]. The aims of the new structure were to consolidate tax administration by closing 200 underutilized tax offices and setting operational targets for the remaining ones, assessing managers based on their performance, and obtaining legal powers to direct how local tax office resources should be used. The new structure was to be headed by a non-political appointee with control over core business activities and human resource management.

3.3 Grassroots Pressure

A case where the availability of open data helped an action’s implementation concerned the deployment of the Single Payment Authority. During its deployment we tracked on a daily basis the number of government bodies and paymasters that were enrolled and certified. We had set specific goals for each ministry, with a plan of enrolling into the system 100% of employees through a succession

⁷ Sadly, the corresponding web pages are also no longer available. However, a representative subset has been archived at <http://www.webcitation.org/6HfXXqfzI>.

of steps, which started with registration, and ended with successfully performing an actual monthly payment. However, many ministries failed to respond to letters and circulars concerning the deployment deadlines. A colleague thought that, given the indifferent response our circulars were receiving, we should try a different approach, namely applying grassroots pressure. Consequently, we developed a website where employees could enter their tax identification number, and see immediately whether their institution was integrated into the Single Payment Authority. Unsurprisingly, many employees, concerned about the fate of their payroll, began pressuring their superiors to join the Single Payment Authority. This increased significantly the rate at which various bodies joined the Authority.

We also saw that the administration failed to follow the project's aggressive time plan. For example, circulars concerning integration into the Single Payment Authority marked "Extremely Urgent" were flowing up and down the administrative hierarchy taking weeks after their dispatch to reach some schools. To avoid these delays, we used *Google Groups* to create a forum serving the government's paymasters. The forum was used extensively for asking questions and receiving informal help from other colleagues. A particular exchange was revealing: the question was asked on 23:16 of a Sunday night, and a reply came just an hour later, at 00:35. The exchange exhibited conscientiousness, industriousness, and diligence that were at complete odds with the indifferent and slothful model of a civil servant portrayed by some popular media.

4 Concluding Remarks

During the two years I served at the Greek Ministry of Finance as Secretary General for Information Systems we restarted dormant projects, deployed many new electronic services, and supported the Ministry's and the Government's work in a number of crucial areas. I am often asked what was the decisive factor behind GSIS's exceptional performance. I was certainly lucky to head a department that had actual implementation capabilities, a culture of project-based management, a technological nous, and many meritocratically selected, well-educated employees.

If I were to select one factor that made a difference, this was the constant struggle to balance short-term with long-term goals. Thus we devoted only half of our team's efforts to the organization's day-to-day running, which too often included fire-fighting (literally in one case). The other half of our efforts went into longer term improvements in the organization's capacity: encouraging good people to head projects and teams, adopting best practices, training, adjusting management structures, leading by example, i.e. demonstrating our expectations to the service's permanent staff. Before we realized how time had passed, we were witnessing that the tiny seeds we had sown had grown to the point of bearing fruit. Thus, in less than a year, through the heroic efforts of its employees, GSIS overcame the crisis it faced, transforming itself into a showcase of solid IT service delivery.

A broader balancing challenge is between the actions required for managing a crisis and those needed to implement sustainable changes. Unconventional techniques, like those described in this experience report, appear to be necessary in times of crisis, in order to cut the Gordian knot of inefficiency and inertia. They can often deliver significant results, and they can even be a potent source of organizational innovation. However, these unconventional techniques are also associated with considerable risks of negative externalities: lack of continuity, stakeholder alienation, and loss of direction. Sustainable changes can be implemented by institutionalizing successful unconventional measures or by adopting reforms in a top-down fashion [18]. The implementation task will require cultivating the ground for change, communicating effectively with all stakeholders, forming alliances [14], as well as acquiring and spending political capital. This will be Greece's challenge in the coming years.

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