

**Real Estate Privatization in the Former Soviet Union
The Effect of Current Environment on Efforts to Automate the Registration
Process**

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Abstract

Registration of real estate is one of the most salient issues in Russian government and society today. Most of the government committees that deal with land registration currently are former Soviet-era inventory agencies. Most of the bureaucratic structures of the old agencies still remain and, given the weakness of the Federal structure in Russia, these agencies have managed to maintain their influence over the real estate privatization process. In any city in Russia, up to three or four separate committees may control separate parts of land registration and titling. One agency may handle apartment privatization, another land parcels, another city property and yet another may control government property auctions. All of the technical data for real estate is usually maintained at another committee, the Bureau of Technical Inventory. These bureaucratic structures are largely duplicated in many of the newly independent states of the Former Soviet Union.

Over the past two years, many cities in Russia have taken the initiative to establish title registration agencies and procedures, even though there has been an absence, until recently, of Federal law covering crucial aspects of real estate transactions (condominium law, mortgage law, etc.). In doing so, they have found it necessary to accommodate the interests of the various Soviet-era agencies that hold information and a certain legislative legitimacy.

This has profound implications in the construction of automated registration and real estate information systems in the FSU. This paper discusses the techniques that were used by our project team to develop automated registration systems in several cities in Russia, and the lessons learned during that process. We present rationale behind the selection of technical platforms, system architecture, and the approach to the design of the systems themselves.

Introduction

During the last four years the country has undergone many changes with regard to privatization, price liberalization, and development of market infrastructure in all parts of the economy, which are followed by increasing social problems, shrinking production, and budget deficits. In these conditions, real estate ownership plays an important role.

Most authorities consider real estate to be a very interesting long-term investment in Russia, as contrasted with a more cautious attitude toward investment in industry. Privatization strategy plays an important role in optimizing and improving the use of land resources. Depending on the privatization strategy and its practical implementation different results can be expected with regard to social equity and income to the local and federal budgets.

Significant measures have been introduced to expand the privatization process to include the real estate market on a large scale. The presidential Ukase No. 1767 of October 27, 1993 laid the foundation for significant transformation of rural, peri-urban and urban land ownership reform in

Russia. The main elements of the Ukase are the general right, in private transactions, to buy, sell and mortgage land which is owned, eliminating a former five and ten year moratorium on private sale, introduction of Evidence of Land Ownership Certificates and simple procedures for registration without prior surveying, conversion of certain land leases into ownership, and improved guarantees of land ownership (including indemnification for expropriation by the state).

In Russia the most active area is privatization and correspondingly development of real estate market for apartments, private homes, commercial and industrial buildings (without the parcels) and private (garden) parcels. In practice, most garden parcels and single family homes were privatized by the end of 1995. The privatization and secondary market of apartments are progressively taking shape, especially in the cities. In St. Petersburg, for instance, 369,000 apartments are already privatized out of 1,2 million (during 1992 more than 20 000 apartments were privatized each month). Currently, there are more than 700,000 privatized apartments and more than 1,300,000 owners registered in Moscow.

While there has been progress in regard to building and unit privatization, land issues are not that clear. Individuals have rights on garden apartments in the outskirts of the cities. There is, however, ambiguity in regard to the privatization of land in the cities. The tolerated form of ownership seems to be long term leases for a period of 49 years. St. Petersburg became the first city to authorize the purchasing and selling of land. An order (Mayoral Directive No. 1049, Oct. 19), issued by mayor Anatoly Sobchak, states that owners of privatized enterprises and nonresidential premises have the right to buy or lease the underlying land. The allocation of parcels to the existing apartment buildings was hindered by the lack of a condominium law.

Another very active area is the privatization of the land under enterprises. The process was initiated with the Order 1535 of the President of the Russian Federation dated June 22, 1994, which defines "the Main Principles of the State Program of Privatizing State Enterprises". The order allows local authorities to permit freehold or long term lease of the land under those enterprises which have already privatized not less than 75% of their shares. This is being considered the final stage of voucher privatization.

Obviously the interest in privatization of real estate is very high, especially in cities. In these circumstances the definition of the privatization strategy and its practical implementation can lead to different results with regard to social equity and income to the local and federal budgets. Thus the reallocation of property rights formerly under state control can be qualified as the *"the most controversial aspect of the reform as it raises the possibility of a redistribution of assets that could decidedly influence the pattern of the wealth for the foreseeable future"*. [Gray, 1993]

In order to promote land privatization, many issues have had to be addressed with regard to the environment which creates the basis of land administration. These can include issues about the definition of approaches to land privatization, and well as the speed of privatization. In the long term, an efficient system of land administration will involve development in a number of areas such as:

- Creation of a system of cadastral and legal registration.
- Development of land and property taxation system.
- Planning and zoning, land use and land use control.

- Identification of new forms of real estate development financing.
- Large-scale development in market conditions.

Successful resolution of all of these issues requires a complex of legal, organizational, and institutional changes, and real flexibility in decision making at both the federal and local level.

Current Status of Land Administration in Russia

There are many features of the current methods of dealing with real estate, which are rooted in the Socialist legacy, that affect the attitude toward real estate issues. These include:

- Separation of land, building, and units, with separate regulatory norms and procedures applying to each of them, which results in cumbersome operations. The privatization of land and buildings was started by different authorities following different legal norms and acts. These authorities subsequently became involved in secondary dealings and transactions. This fragmentation of responsibilities (e.g. separate authorities responsible for land and buildings) has become an impediment for the market.
- No clear distinction of the functions of the local and federal authorities. For example, the number of agencies operating the federal level includes the RosKomZem, GoComMushtavo, GosIStrio, etc., and their corresponding committees on the local level. Lack of coordination or overlapping responsibilities makes it impossible to implement long-term real estate development policies, and results in increasing costs and risks for market participants dealing with real estate.
- Significant work in the development of a legal framework has been undertaken. For example, the following laws have been adopted or being drafted:
 - Law on Registration and Real Estate Transactions (passed on third reading, but returned for reenactment by the Upper Camera);
 - Law on State Land Cadastre (still at the initial stage of drafting);
 - Condominium Law (enacted in June, 1996);
 - Mortgage Law (returned after first reading, there is however functioning Presidential Decree on Mortgaging from February, 1996);
 - Law on Real Estate Taxes (enacted, amendment anticipated to allow introduction of pilot tax systems);
 - Law on Realtors.
- Insufficient and often contradictory legal infrastructure. There is an overall inconsistency and substantial differences in laws and their practical application. The problem is not simply enacting laws, but also to synchronize them, and to resolve the conflicts between them to the extent necessary to promote an active real estate market. In addition, there is a strong tendency for laws or decrees that are disagreeable to local administrations to be simply ignored, particularly if those laws or decrees issue from the Federal level.
- The law on real estate registration and transactions, which was passed on third reading, was returned to the Upper Camera for political reasons connected with uncertainty of institutional responsibilities. A special commission was established to seek consensus and

resolve the institutional conflicts and deficiencies.

- No zoning, no land use control. Under the socialist system there was no need for land use regulations since the state was the only investor, developer, construction contractor, and owner. However, investors need stability and certainty with regard to permitted use of land and land resources, and information as to existing restrictions, otherwise they are subject to use restriction by bureaucratic fiat or bureaucratic corruption.
- Taxes. In Russia, the land tax is still based on normative appraisal (assessment of value by size, location, technical aspects, etc. rather than according to market influences), modified by local coefficients reflecting actual use. In normal markets, valuation is based on zoning and market price, and operates as a mechanism for better use of city land resources. The loss to the Treasury in Russia because of inadequate cadastral information (parcels and users), is estimated to be in the range of 25 to 30 trillion rubles. Less than 10% of land users in urban areas pay real estate taxes. In St Petersburg, the income from real estate taxes is between 3% to 5% of the city budget, which is very low compared to Western municipalities, where the percentage is 40% or more. So, at the present, a main source of income for Russian cities results from privatization itself. There is increasing understanding that income resulting from improved mechanisms for land transfer and levy of taxes would far exceed the income that results from privatization.
- Condominiums. Although a condominium law was enacted in June, most of the apartment units in multi-tenant buildings were already privatized without clear definition of the shares and responsibilities for the maintenance of common areas.
- Extremely high subsidies for utilities and land. These subsidies are almost 90%, which is covered by the budget. These subsidies have the effect of skewing market prices. Even people who own several apartments benefit from these subsidies. The subsidies lead to ineffective maintenance of properties, making them unattractive investments.
- Incomplete real estate inventory. At the present time, municipalities are the main owners of real estate in Russia, and these cities often do not know what they own, nor who are the occupants. This restrains the privatization process because the municipalities are also the driving force behind privatization.
- Lack of market appraisal knowledge, leading to unrealistically low rents and sales prices for commercial municipal leases or sales.
- No means to assess infrastructure costs. Infrastructure was previously government domain, so the private sector has little or no experience with the development or costs of facilities to support real estate development. Also, developers now pay VAT on infrastructure costs in St. Petersburg, which greatly increases costs of development.

The foregoing list represents a very generalized picture of real estate activities in Russia. However, there are a number of pilot activities related to each of the above areas. A number of cities have initiated pilot registration activities even in the face of regulatory uncertainties, including Tver, Nizhny Novgorod, St. Petersburg, Pskov, and Novgorod. This work has involved the redefinition of registration authorities and procedures for privatization and registration. Successful

development of tax systems were undertaken in the cities of Tver and Novgorod, and this will result in a model that can be used as a basis for implementation in other cities. Certain activities have been initiated with regard to residential cooperative and condominium development (e.g. Orenburg), along with financial schemes for these developments.

All of these activities have been started as a result of international initiatives (grants and loans), but their success has been mainly due to positive political environments at the local level. The expansion of these activities will require an ongoing high-level of local political initiative and cooperation.

Objectives of REIS project

During 1994 a number of USAID REIS projects started in nine Russian cities - Nizhny Novgorod, Vladimir, Krasnodar, Yaroslavl, Barnaul, Novgorod, St.Petersburg, Tver and Pskov. The objectives of the REIS projects are to integrate the existing legal registration activities, help improve the registration and land transfer practices and support the privatization and development of real estate market. The project provides help in database and systems design, procurement of hardware and software, training of Russian personnel, and ongoing technical assistance. The remainder of this paper will focus on the legal issues surrounding registration and system implementation issues in Russian cities, specifically St. Petersburg (population 5,000,000), Tver (450,000) and Pskov (200,000). The REIS project included the following areas:

- Domain expertise and consultation
- Systems and software development
- Procurement of computer and other equipment
- Training

The Task Order issued to cover the work to be performed under the Project listed the following main objectives:

1. To promote efficient, cost effective procedures of land and building registration and property management by assisting local administrations to establish unified real estate information systems;
2. To provide technical assistance in the area of fiscal management. The assistance will focus on improving fiscal management procedures and systems;
3. Provide customized products to service various elements of the real estate and finance industry;
4. To provide open access to the system to citizens with a legitimate interest in the information contained in the file, thus allowing owners of land and property the means to verify whether the municipality records that pertain to their private property conform to their personal understanding;
5. To sufficiently train Russian teams which could take over, toward the end of the program, delivering the technical assistance to be provided to municipalities, with only back up support from expatriate consultants;

6. To obtain greater cooperation with the BTI, Gozkomzem, and other government agencies which would allow the project team to assist them in re-engineering their processes and procedures, to effectuate knowledgeable transfer on land registration policies and procedures, and potentially, to assist in a rapid dissemination of certificates;
7. To assist in the establishment of a Real Estate Information System, organized under the city administration, which encompasses all the data necessary for the creation of a unified land and improvement registry, and which could ultimately function in that regard; and
8. To assist the city administration and the KI in municipal property management through access to the data which will be available through the Real Estate Information System.

Organizational framework of system development in REIS cities

Currently, there is no unified system for real estate registration in Russia. In most of Russian cities the registration activities are distributed between three agencies:

- The Land Committee (LC), which is responsible for land allocation, land management and land use control. The Land Committee registers land parcels - both first registration and secondary transactions. They have introduced their own standards for certificates of title and certificates of official search (spravkas). The certificates contain a parcel description with an individual plan and legal information. Part of the Land Committee documentation is the cadastral/land file, which can contain parcel coordinate descriptions, boundary agreements, the alienation grant (rights establishing documents), etc.
- Bureau of Technical Inventory (BTI) provides the technical description of buildings and units inside a building. BTI offices as a rule store information on the occupants of buildings and apartments. They also prepare building and floor plans. BTI has its own standard documents; the main document is the “Technical Passport”. The Technical Passport is a huge document; the amount of technical data is much higher than the legal/ownership information. In the past, the technical passport was updated every four years, but now there are no longer funds available to finance this re-inventorization. Thus, the mechanism for maintenance of technical data no longer exists. However, the BTI remains a primary source of information for privatization of real estate objects.
- Property Committee (PC) is responsible for the municipal property management and municipal leases. In most of the cities this is a very powerful agency - most of the city property is still owned by the municipalities. The PC initiates the privatization of the commercial premises and sale of commercial real estates. Often there is a special agency within the PC - called the Property Fund (PF) which undertakes the actual sale. The PC maintains its own register of the privatized commercial real estate, which is generally more like a document register. The registration of secondary transactions in commercial real premises is something which is subject to a certain amount of ambiguity. By definition, the Property Committee keeps track of municipally owned real estate, but the secondary transactions of already privatized premises are often registered by the Property Committee (and in some places by the BTI).

The procedures for obtaining planning permission and construction permits were developed for the previous communist system, under which the land was allocated by the State for all purposes, and stipulation of the size and the location of the parcel was also under the purview of the State. Parcel rights were not registered before the erection of the building, so there was insufficient security for the private investors during the development period.

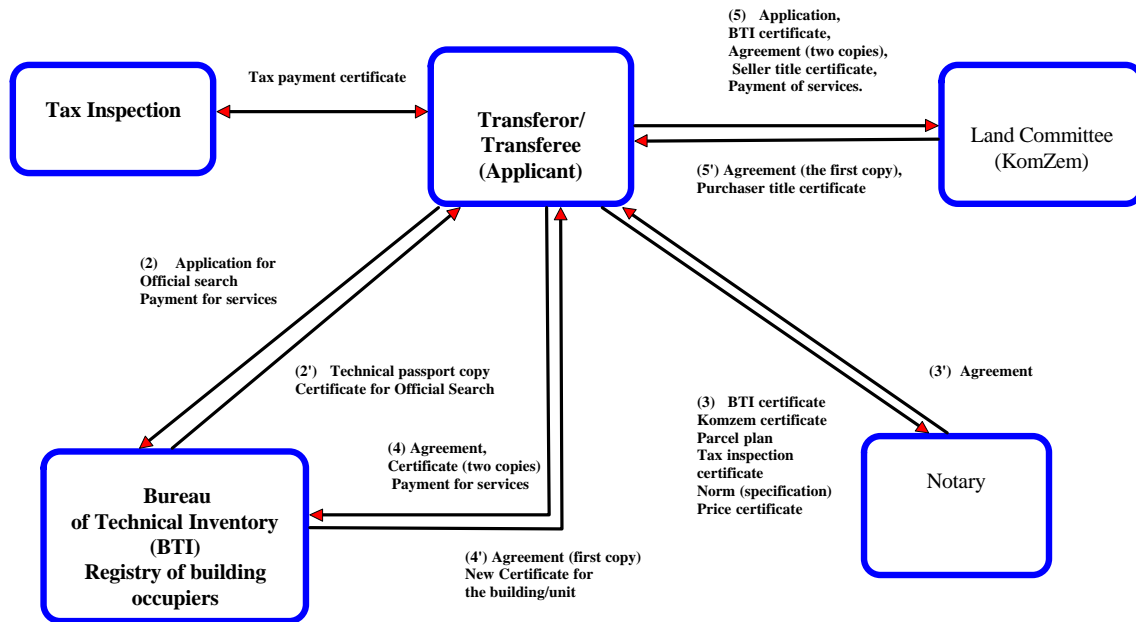


Figure 2: Procedure for real estate transaction

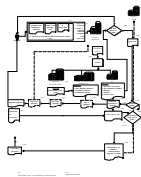


Figure 3: Procedure for privatization of enterprise land parcels in St. Petersburg

Development of the Registration Systems

St. Petersburg

St. Petersburg has a special status under laws of the Russian federation, placing this city in the same category as Moscow, and which allows it to pass laws and regulations. At the end of 1994, the Government of St. Petersburg enacted two normative documents - Decree No. 36 (“On the Concept of Real State Management System” dated 12/26/94) and No. 87 (“On State registration ...” dated 12/26/94) which stipulate key directions of development of real estate in the City. According to these documents, the responsibility for the cadastre and legal ownership registration was vested to the Committee for Land Resources and Land Management (KomZem, also known as Land Committee - LC). A civil code became operational on January

1, 1995, which validated all existing registration laws, and which had the effect of confirming laws and decrees which had been enacted on or before that date, which included those issued by the St. Petersburg city government.

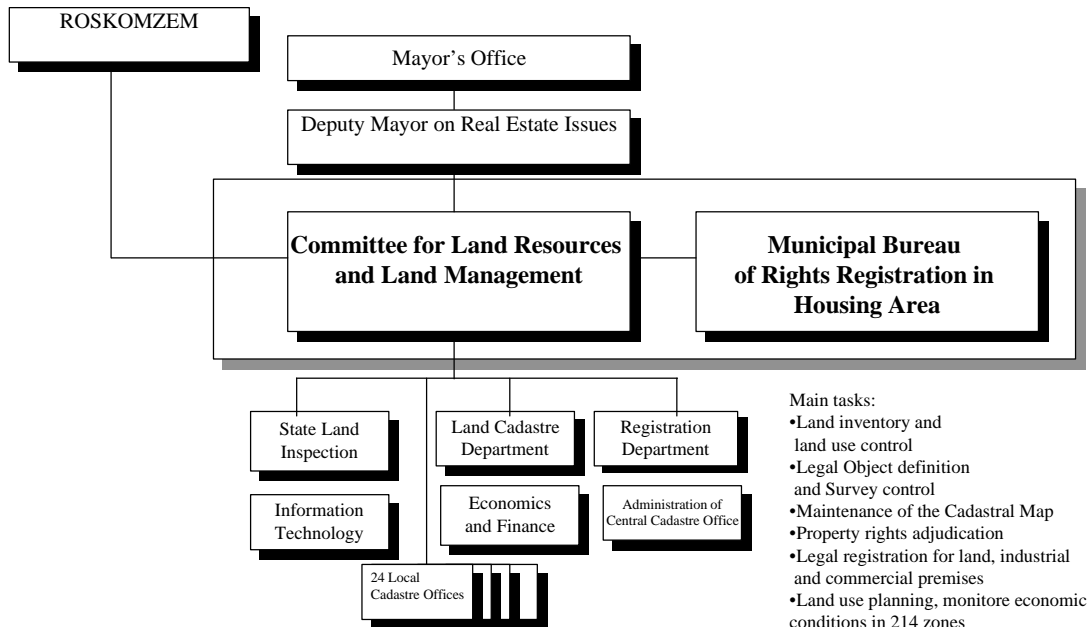


Figure 4: Structure and functions of the St. Petersburg city cadastre

Figure 4 shows the structure and the functions of the Land Committee in St. Petersburg. In addition to the maintenance of cadastral maps and registration of rights on land parcels, buildings and commercial premises, the LC is responsible for land inventory, land use control, land use planning and monitoring the economic conditions in 214 zones. The Municipal Bureau of Registration of Rights is subordinated to the Land Committee and has responsibility for the legal registration of rights for residential premises.

During the first half of 1995, the Land Committee prepared a number of regulatory documents, defining the structure of land book (Order No.1 dated January 4, 1995), and the procedures for registration (Order No. 25 dated April 18, 1995) that involve the central LC departments (Department of Registration and Land Cadastre), the rayon offices (24 in number) and MBRR. Since the beginning of 1995, the system has been functioning, supported by standard documents for exchanging information between the rayons and the central office. An electronic version of the cadastral index plan, showing all cadastral blocks, was produced and has been used for allocating cadastral identifiers.

St. Petersburg has been considered a leader in the development of a cadastral and registration system, but as of this date has registered approximately 10% of land parcels (the expected total is 100,000 at the first stage and up to 500,000 subsequently). Less than 10% of land parcels have a cadastral survey, because the regulations allow privatization and first registration of individual plots without survey (this survey must, however, be provided for secondary transactions). For large cities like St. Petersburg, the only practical way to undertake cadastral surveying and first registration is on a sporadic basis, while smaller cities

can adopt a more systematic approach. Smaller cities that have actively pursued cadastral surveying and real estate inventory can use this information as the basis for the construction of a registry, and therefore develop an active registry much more quickly.

The Land Committee is currently facing considerable organizational challenges, aimed at decentralization of their activities. Rayon offices currently accept client applications and have preliminary control over cadastral surveying. Final boundary control and final decisions on rights registration are taken in the central office, which results in delays in processing client applications.

In spite of the fact that the MBRR reports to the Land Committee, the agency has developed fully independent system for registration of rights in residential premises. This is probably one of the most efficiently functioning registries in Russia, created on the basis of the archive of all rayon BTI offices in St. Petersburg. The number of applications reaches up to 1500 a day, and the MBRR intends to open even more offices for the satellite towns and connect them to the main office via communication facilities and other means. The system is organized around the address indexes, and a key issue for MBRR is access to the cadastral index plan (maintained by the Land Committee) in order to cross-reference address based records to the building/unit cadastral identifiers. MBRR has not yet accepted the Land Committee standards for registry bookkeeping; however there is unification between the two agencies on specifications for certificates of title and certificates of official search.

Tver

While the St Petersburg system was based on re-organization of previously existing authorities - the Land Committee and MBRR, Tver and Pskov established completely new authorities - the Tver Registration and Licensing Chamber and The Pskov City Registry, both subordinated to the respective city administrations.

The Tver City Registration and Licensing Chamber was established under Order No. 91 of Head of City Administration on February 21, 1995 following the reorganization of an existing institution within the City Administration. The Chamber is responsible for title registration, registration of juridical entities, and licensing of businesses.

It took almost one year to prepare all the necessary legal provisions (to enact temporary regulations and assign authority to the Chamber to register transactions, to define the registration procedures, to appoint a chief register and key personnel, to define the key staff and prepare a budget, to write a Charter, to define type of services and fee structure). The Tver administration has estimated that the fees charged by the Chamber for its registration activities should easily cover the running costs of the office, and excess income will be shared with BTI, Land Committee and Property Committee, thereby easing the financial burden of the City Administration. Budget estimates have stated the operation costs of the Chamber will be approximately 60 million rubles, with anticipated revenues between 470 and 530 million rubles. Additional allocations from the revenues collected by the Chamber will be for the expansion and continued implementation of the REIS throughout the remainder of the city (REIS data are now loaded only for one pilot area) and possibly the Oblast (Tver District).

The impact of newly-increased efficiency provided by the Tver Chamber was seen during the first weeks of its operation. For the very first week a number of apartments were privatized and re-sold within a five day period. Previously, a person wishing to complete a secondary transaction (such as apartment sale), would often be required to visit 5 or 6 different municipal agencies over the course of 30 days. (Some of the schemes below show these processes.) This is an excellent example of how the public or real estate professionals will be able to go to one office, get data about ownership rights and other legal interests, and complete their transactions. These secondary transactions will very quickly become the bulk of the work required of the registration office. In the previous system these functions were allocated to number of offices (BTI, Land Committee, etc.), which was leading to confusion, inefficiency and inaccuracies in the legal records.

The BTI, Property Committee and Land Committee still preserve some of their functions in the process of privatization. In the future, the LC will fulfill its land use and control functions, the BTI will maintain the buildings inventory and the PC will be responsible for the management of the municipal property. However, the Legal Chamber will be the ultimate source of legal ownership data.

Currently the Chamber has 16 employees trained to undertake legal registration of real estate rights. They are divided into 5 teams, each consisting of one registration specialist, a legal council and an operator (receiving applications), with one supervisor overseeing the daily operations. The BTI provided four of its staff members to the Chamber to assist in the full range of registration activities.

Immediate priorities of the Chamber work are the finalization and further improvement of registration procedures and user-training for the Chamber staff on the registration software developed under the REIS project. Other objectives are to speed up the development of a real estate inventory, which can be used as a source of information for legal registration, as well to further develop the graphical part of REIS, which will be used together by the Registration Chamber and the Geodetic Department of the Architect's Committee to maintain the city cadastral map. Through the use of the Geodesy's Arc/Info graphical database and the Chamber's Oracle database, a link between the graphical and attribute database was completed.

Pskov

The Pskov City Register (PCR) was established under Mayoral Decree No. 39 on November 15, 1995 with the objective of integrating the existing processes of registration of rights and documents in the three agencies - BTI, LC and PC. The Temporary Regulations on "The Unified Real Estate Information System of the City of Pskov Development", signed by the Mayor of Pskov, states that:

"The Temporary Regulation is issued to create a computerized city-wide control system to perform title registration, to secure real estate rights, to establish a complete and manageable real estate market in Pskov".

The PCR's objective is to address the shortcomings of the existing system and to provide the integration necessary to make the existing information in BTI, LC and PC available to market participants, to tax authorities for fiscal purposes, and to other city authorities. Though the

PCR is not fully functional at this time, a building was recently allocated by the City Administration to accommodate the PCR, LC and BTI, which is currently in the process of renovation.

REIS Concept

The general objectives of the REIS project were laid down which can be summarized as follows:

1. Integrate existing real estate information held at the various City agencies into one database structure;
2. Establish a Real Estate Information/Registration System that allows the City to accurately locate and identify real estate objects and to record the ownership rights and other legal interests in those objects;
3. Provide a basis whereby the market value of real estate, determined through real estate transfer prices, may be reported. Accurate real estate transfer price information is necessary for taxation purposes, in terms of transfer tax or on-going taxation;
4. Provide the general public and real estate market participants with real estate information that affects real estate transactions and property values;
5. Provide the core of a computerized city-wide information system that can serve as the nucleus for future expansion.

Within the three cities, Tver, Pskov, and St. Petersburg, the conceptual framework for Tver and Pskov was different from that of St. Petersburg. The objective for Tver and Pskov was to create a real estate registration system, which will more or less support all business functions of a land registry and provide a basis for city wide real estate information system. The objectives for St. Petersburg was defined solely as the development of an integrated real estate information system that will help agencies share real estate data and therefore speed up the process of real estate privatization and secondary real estate transactions, as well as minimize the amount of uncertainty resulting from data duplication in the agencies involved with real estate. Even so, the St. Petersburg REIS was expected to “support” and enhance the registration process.

Overall Concept of an Automated Registry

The overall structure of a registration system is very well known. In its simplest incarnation it can be represented as a simple triad, as shown below:

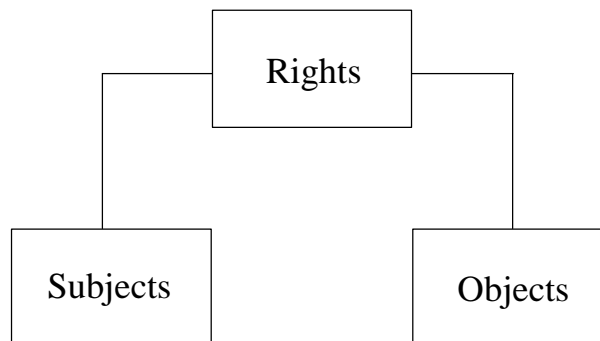


Figure 5. The Registry Triad

This diagram describes the basic concept of the registry - that **Subjects** (owners, holders of rights) are connected to **Objects** (land, buildings, apartments, etc.) by the abstract concept **Rights** (ownership, lease, mortgage, etc.) A slight expansion of this diagram is shown below:

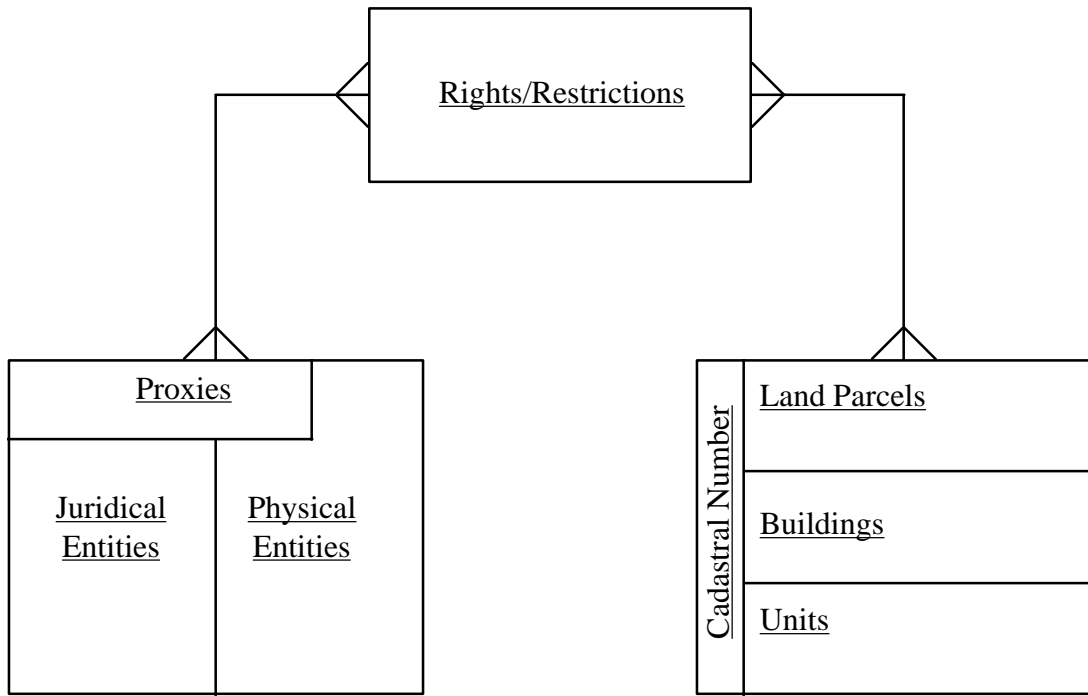


Figure 6. The Registry Triad (expanded)

This diagram includes some additional detail that is important to the design of a registry. For example, it introduces the idea of objects being linked together by some sort of ID, commonly a Cadastral Number. It also shows that rights holders can be represented by proxy holders (e.g. under power of attorney). The “crows feet” symbols at the end of each line connecting the Subject-Object-Right triad is a commonly used symbol indicating a “many-to-many” relationship. This simply means that a right (e.g. mortgage) can be held by one or more entities (e.g. persons and/or companies); that a single entity can hold one or more rights to real estate; that a property can be subject to one or more rights; and that right can apply to one or more properties.

At a fundamental level, the only information necessary in a registry is (1) a clear, unambiguous identification of the real estate object, (2) an unequivocal means of identifying the holder of rights, and (3) a clear identification of the right involved in the connection between the subject and object. In reality (and this is certainly the case in the FSU), there is usually an insistence on the part of local authorities that additional information be held at the registry which is not necessary to meet the three criteria listed above. This situation is illustrated in Figure 7 below:

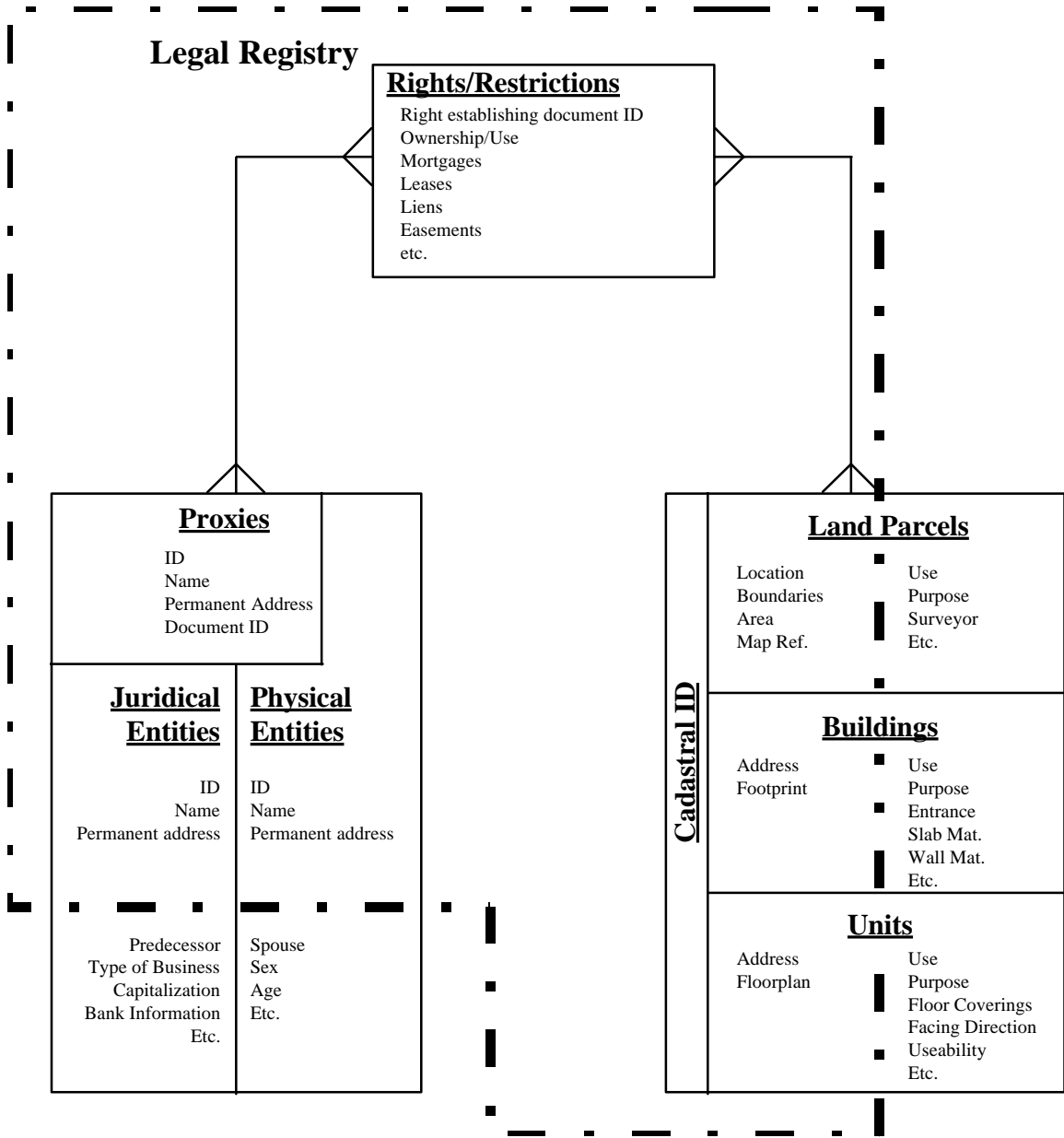


Figure 7. Registry vs. Non-registry Information

The area in the heavy “dot-dash” line is the conceptual domain of a registry - the items inside this line could be considered to “belong” to a registry, and those outside could be considered extraneous information. Arguably, there are items in the above diagram that are shown to be part of the registry that could be considered extraneous. For example, does a method of identifying the document that was used to establish a right need to be included? Does the spouse of a right-holder need to be identified, unless the spouse is a co-owner? Does the outline of a building or the floor plan of a flat need to be held in the registry, if the object can be otherwise unambiguously identified? Indeed, do even the boundaries of a parcel need to be included if that inclusion duplicates information held by another agency?

These questions are important (and are familiar to systems designers), because they profoundly affect not only the design of the system, but more importantly, the cost of maintaining the system and the integrity of the system on an ongoing basis. One obvious answer to all of the questions in the preceding paragraph is that if the specification of information content is embodied in law, then the question is no longer debatable. In the FSU, this issue remains moot, though the reality is that the systems designer must be willing to compromise on the details (e.g. the desires of local administrations).

There is a school of thought within the Systems Analysis/Design discipline which urges systems designers to ignore the existing situation within the business process being remodeled, and to think the problem through afresh. While this technique may sometimes be a useful tool in business re-engineering, we do not believe that it is applicable in all cases. First, it is implausible that a systems designer can model a system without (through his/her own experience) reference to some other existing model; that being the case, the reference point should be the business process being modeled, unless that process is so flawed that it obvious that the existing process should be completely discarded. Second, there is usually some considerable degree of investment in the existing practices and procedures, at least in terms of institutional memory, and that investment should not be squandered. Third, the people involved in the existing process will naturally be resistant to change - a design that retains some familiar paradigms will be accepted more easily than one that completely “re-engineers” the process so that it is unrecognizable to the people doing the work. In our experience, any approach which ignores history (to paraphrase Santayana) contains the seeds of its own failure.

In the context of the design of a legal registry application, Figures 5, 6, and 7 represent a very high level of data modeling, the first step in the process of identifying key data sets. These figures show a generalized and static picture of the key registry data. However, it is obvious that there are registry business functions that will require a much finer level of design granularity. For example, each legal interest is established or terminated on the basis of a legal document (e.g. a deed) and is preceded by an application lodged by a current or potential interest holder. The list of applications allows one to establish priorities of legal interests. Certificates of title or certificates of official search will be produced that show all relevant title information which will be related to a particular real estate object and to an entity (person or company) who holds the certificate. Requirements for security and data validity will result in additional data being captured showing, at minimum, the date of last modification of a record and the operator performing the modification. The retention of even more data is implied by the necessity to provide an archive so that historical searches can be performed.

Our approach to automation design during this project was to carefully study existing processes, procedures, documents, legislation, etc., and to give recommendations and assistance when we found pieces to be missing or inadequate. We prepared our recommendations on systems design with careful attention to the distinction between an “ideal” system and a system that was possible. When appropriate, we prepared models that mimicked existing practices and procedures, so that the system would be relatively familiar to existing personnel when it was deployed. In one extreme case (St. Petersburg), the system would only serve to integrate systems that were already in place, making few changes to procedures that were currently being followed.

System architecture and technical platforms

The architectures of the systems developed in all three cities varied according to the local situation.

St. Petersburg

The situation in St. Petersburg was unique among all of the Pilot cities. As a city of about 5 million, it really more analogous to a small country than to an average Russian city; indeed, St. Petersburg and Moscow share the ability to pass their own laws and decrees.

In addition, St. Petersburg was rather advanced technically. It is the home of several premier technical institutions, and has a wealth of technology at its disposal, relative to most other cities in the FSU. St. Petersburg had already developed or were in the process of developing automated systems. The Land Committee had established a relationship with a local company, Baltros, to develop an automated system for land registration; they also received some assistance from a Finnish company in the initial phases of this effort. The Property Fund had a well-developed system which consisted of a large network of workstations (PCs) tied to a central Relational Database Management system. The MBRR had made significant strides in automating their operations, and were in the process of entering archive information. Finally, some of the BTI offices were making plans to automate independently. Naturally, these agencies treated these systems with a certain amount of proprietorship. Some were very forthcoming with information regarding the design of their systems, and some agencies were far less cooperative. However, during the project the question was commonly asked what constitutes a system - the design, application development, the data, mechanism of their entry and updating or all of these together... Most of the above mentioned systems had been in a process of development which didn't reach the stage of implementation and there were very limited amount of data which as a rule were not updated afterwards.

The variety of existing systems that were already in place made the establishment of an integrated real estate system in St. Petersburg especially challenging. The main objective in St. Petersburg was to provide a mechanism that would integrate all of the existing systems, plus allow for future expansion.

As a result, it was perhaps inevitable that the technical objectives of the St. Petersburg REIS differed from the other REIS cities. The system was never intended to be a "registration system" per se; the political difficulties involved in establishing a centralized registry were immense, because activities involving registration continued to be fragmented between a variety of local institutions. Instead, we hoped that the Project would result in data sharing and cooperation between the various agencies, as well as data access by third parties, which would serve to support a more active real estate market in the future. As a result, the following list of objectives was developed:

- **Strengthen existing systems.** Since all committees involved with the REIS had systems in development that were in various stages of completion, we expected that synergy from the REIS, in terms of improved technology, procedures, and inter-committee communications, would only serve to improve these systems.
- **Strengthen technological capabilities in the City.** The REIS was to be developed using the most current software and hardware tools; these tools would remain with the REIS,

and would be available to the City for continuing development. In addition, we provided advanced training in the use of these tools to City personnel.

- **Integration.** It was a definite criterion that existing City systems be integrated into the REIS without significant changes to those systems. Thus, a series of inter-committee interface specifications were developed that would minimize the impact of integration.
- **Coordination/consolidation.** The REIS was intended to improve the ability of certain agencies to rationalize and coordinate their functions and database structures, e.g. Land Committee and MBRR, Property Committee and Property Fund.
- **Unification/control.** A goal of the REIS was to provide a unified view of City real estate, with individual committees responsible for their own database and applications. However, the REIS concept - because of the ongoing benefits we expected it to provide to each committee - would encourage the committees to maintain data standards, data access control, and exchange interfaces.
- **Prevent fraudulent transactions.** Because the REIS would be able to maintain a list of all in-progress real estate transactions, fraudulent or conflicting transactions could be detected and prevented.
- **Provide reliable information.** The unification provided by the system would allow agency and public access to a far greater and more reliable source of information.
- **Catalogue/inventory.** The REIS as designed should allow the construction of an inventory of all city-owned real estate, and would maintain a number of catalogs common to all agencies, such as addresses, types of entities, types of legal documents, etc.
- **Independent registration.** The REIS should allow (via coordination between the agencies) independent registration of real estate objects, e.g. registration of a building before the land parcel is defined. This should be done without compromising the registration process, through issuance of temporary cadastral ID's.
- **Sporadic/systematic data capture.** The REIS would improve the City's ability to register or privatize property on a sporadic (as needed) or systematic basis.
- **Standardized Queries and Reports.** The REIS would allow standardization of certain and queries, while still providing support for ad hoc queries.
- **Condominium registration.** The system should support the eventual registration of condominiums and condominium associations.
- **Expandability.** The system should provide a basis for additional functionality in the future, such as establishment of a fiscal cadastre, zoning and land use planning, etc.

Finding a technical solution which to allow for the achievement of these objectives was not easy task, considering the fact that at the early stage of system development the functions of the real estate agencies were still in a process of clarification, and the systems under development in these agencies overlapped significantly in terms of both type of data being maintained and functionality. The organizational frameworks of the agencies and their procedures differed widely. Two of the agencies - the Land Committee and Property Committee had both central and rayon offices (the number of the corresponding rayons and their administrative boundaries were different), Property Fund and MBRR had only one central office, while BTI operated only on rayon level.

The design concept that evolved for the St. Petersburg REIS lead to the establishment of a Systems Management Center (SMC or CCF), which consisted of a large-scale database server connected directly to the primary agencies and to the pilot rayons. The SMC was to act as a "clearing house" for information that would be shared and/or transferred between agencies.

The SMC could indirectly enforce standards for data formats and data exchange that would be critical for evolution of a truly integrated system.

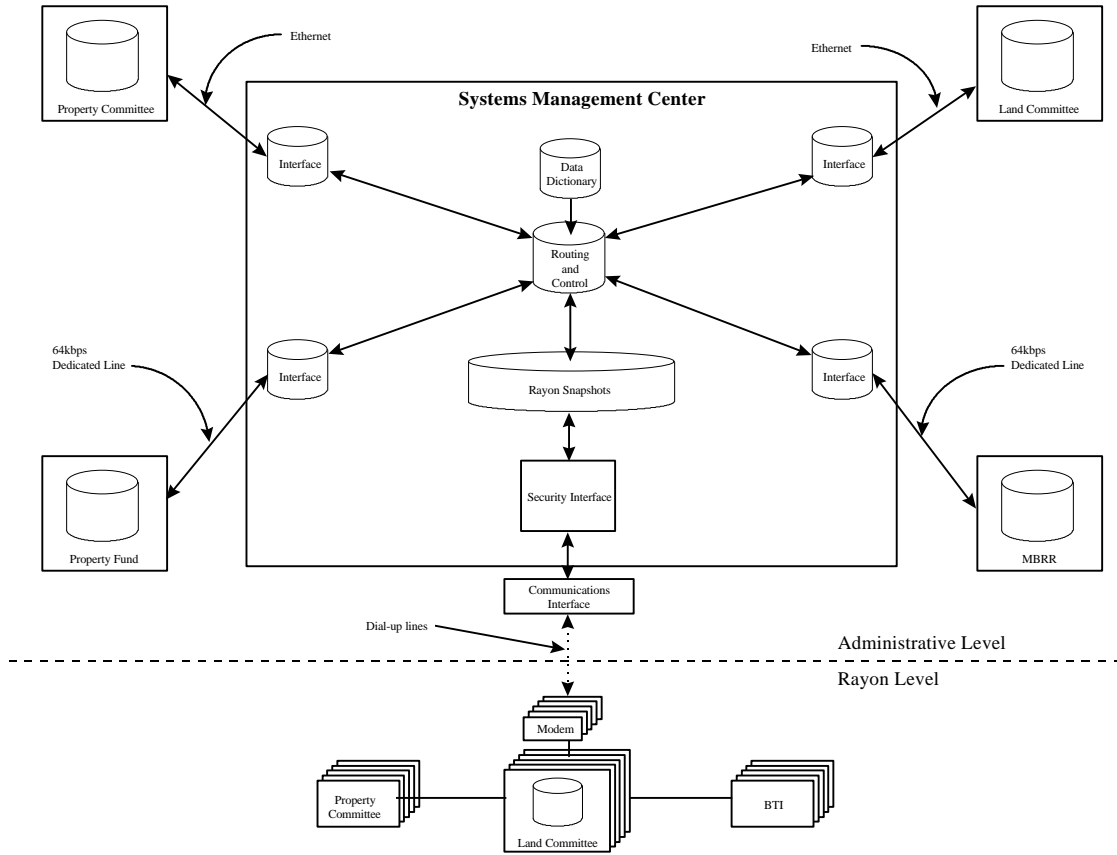


Figure 8. Structure of the St. Petersburg REIS

In addition, equipment and software was provided to the agencies and to the pilot rayons that would allow for local databases that would be under agency control. The actual system configuration is shown below:

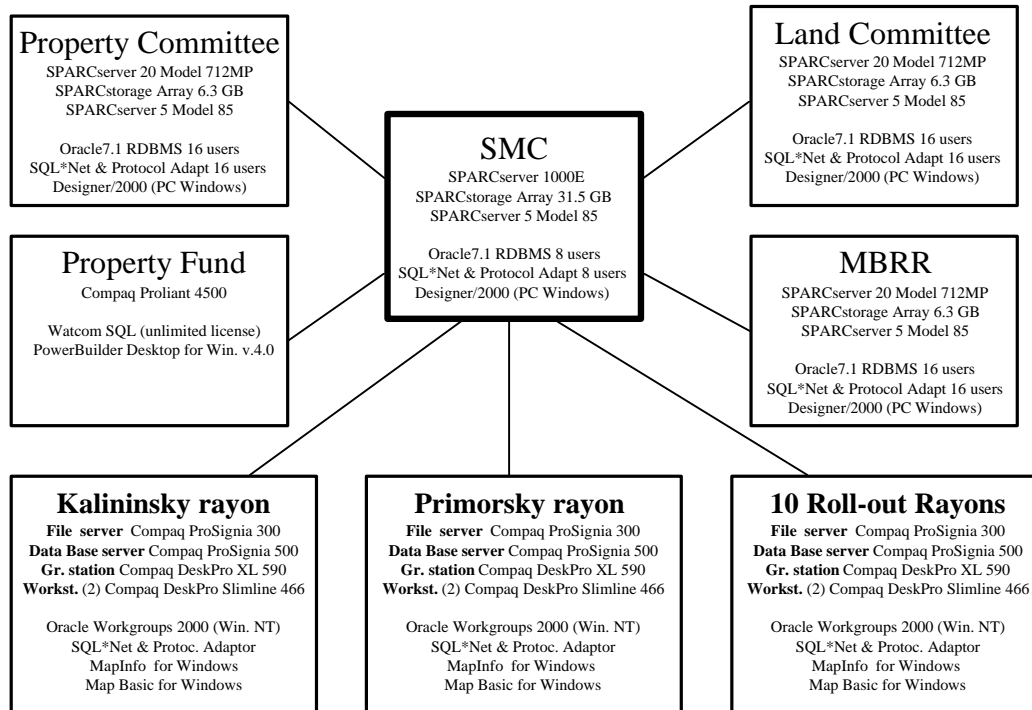


Figure 9. St. Petersburg REIS Configuration

St. Petersburg was a classic example in development of a complex multi-user and multi-agency system. The software development effort used a variety of approaches to simulate the data needs and business functions of each agency alongside with those of the SMC, in order to clarify snapshots, interfaces, communication schemes and patterns, updating strategies, etc. The design of the REIS system in St. Petersburg actually developed on two fronts: First, a “prototype” model of a real estate information system was developed, using CASE tools, which established a baseline for the functionality to be included in such a system; this model continued to be enhanced and improved through the end of the project. Second, using the lessons learned during the development of the prototype, a second project team was established consisting largely of local (Russian) subcontractors. The objectives of this team were to develop a variant of the system that would interface to the actual agency systems.

A graphical (mapping) component was supported in this project to the extent that graphics stations and MapInfo licenses were provided to the City for deployment at the rayon (district) level. These stations were to be installed at the Land Committee rayon offices to support cadastral mapping. The Land Committee used an Intergraph system in the central office to integrate and produce cadastral maps

Tver

In Tver and Pkov the goal involved developing a system that would unify all currently existing real estate registration activities, allow unification of information on land parcels, buildings, and units, and allow expansion of the scope of registration of legal interests to accommodate registration of interests which are not currently addressed, such as mortgages, liens, easements, etc. This constitutes an evolution from a purely document-based registry toward a full title

registration system. Another objective was to be able to support the full functional flow of the registration process, starting from the entry of the initial application through the registration and certification of rights or interests.

In Tver there was an existing system, which was known by the acronym SYMCAD, that had been developed by the city administration which involved a great deal of design effort. This system was based on “desktop database” technology, which did not lend itself to easy expansion. In fact, the system was over-designed, and had a very low level of integration and robustness. The BTI module in this system, which provided the technical description of buildings and units, was subsequently used to provide the technical data needed to identify real estate objects for registration purposes. Similarly, there had been an application developed for the LC, which was temporarily used for data entry until the full system was put in place. This resulted in a final configuration that is shown below:

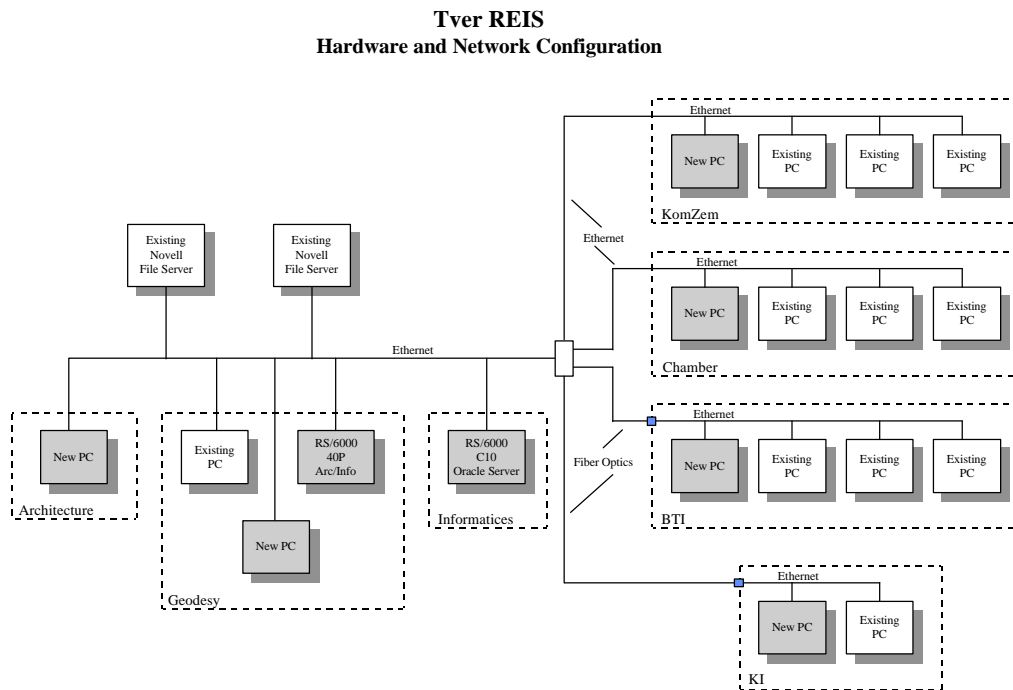


Figure 10. Configuration of the Tver REIS

In order to use SYMCAD, a series of interfaces were developed which allowed bilateral access to information between the two systems. A graphical representation of the structure of this integrated system is shown in Figure 11:

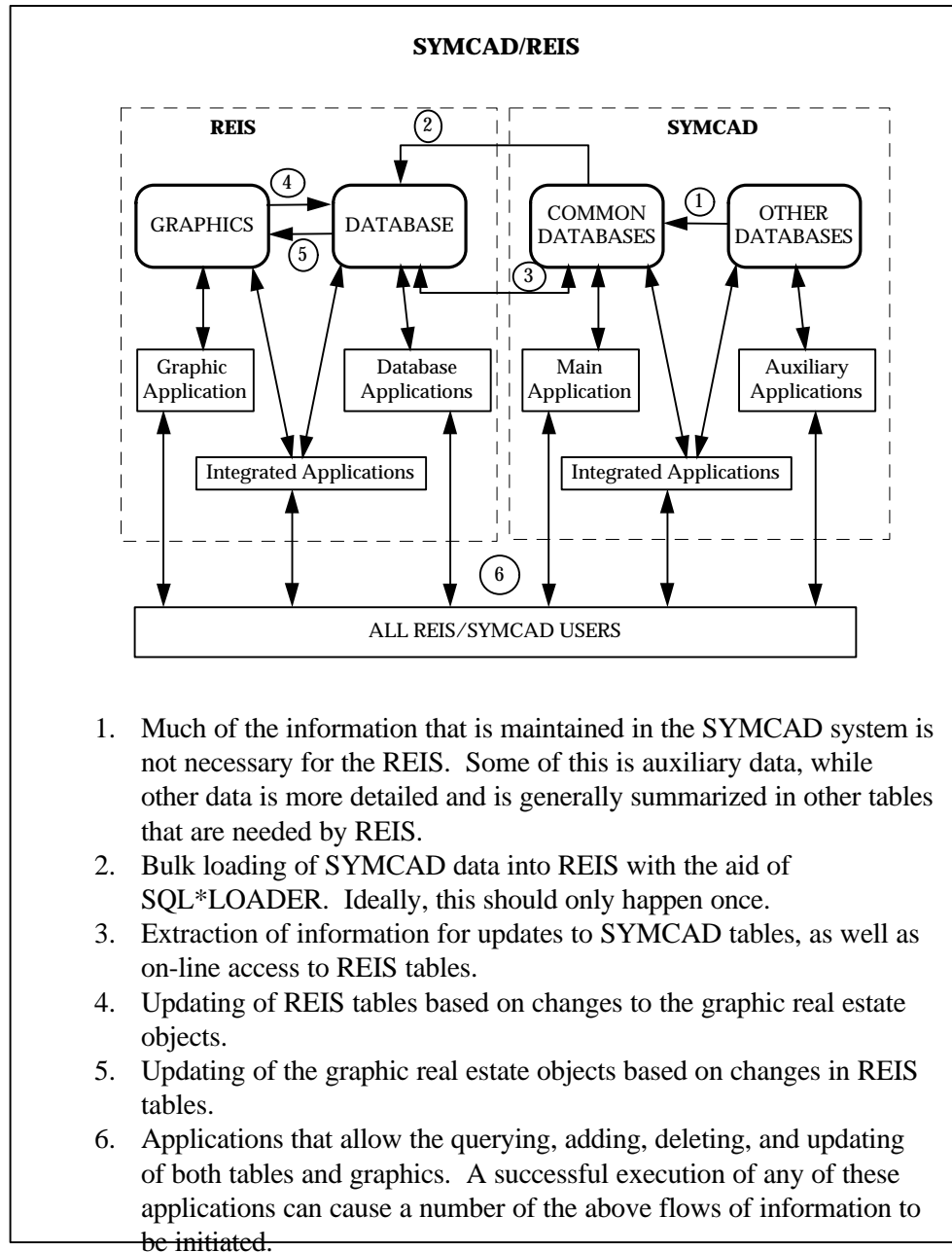


Figure 11. SYMCAD/REIS Interaction

The advantages of this approach were as follows:

- The design and implementation of the REIS could be performed concurrently with the City's ongoing SYMCAD development efforts with very little interference;
- The data that was available within SYMCAD could be used without the expense of entering the data again; and
- No direct modification of SYMCAD's data structures would have to occur.

- One of the most important advantages of this approach was that there was no need to interface SYMCAD with any graphic representation of real estate objects.

Subsequently, it was decided to use the REIS as a basis for the development of a fiscal cadastre for the City. This facility is under development.

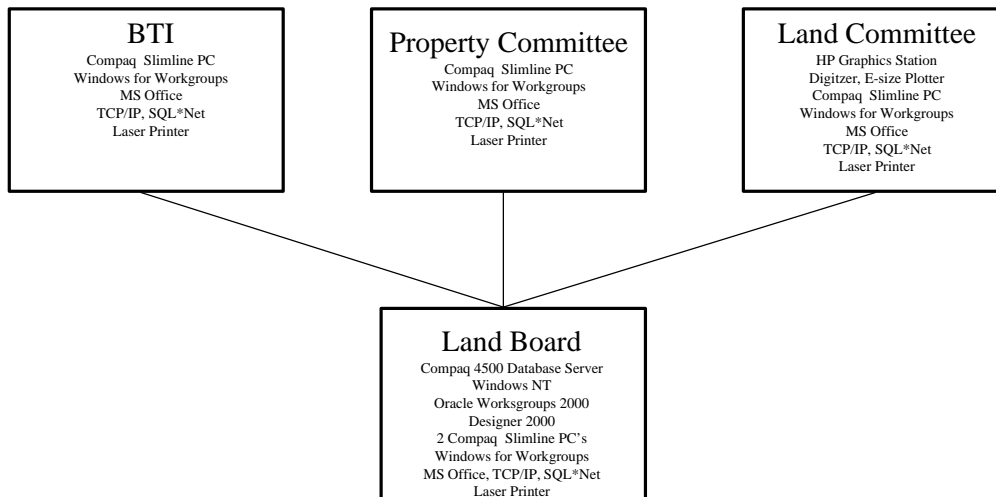
Since the inception of the Project, the City had been committed to the acquisition of Arc/Info to support their mapping requirements. This was additional impetus for the selection of Oracle as the database management system because of the well-known compatibility between Arc/Info and Oracle.

Pskov

The design of the system in Pskov was somewhat more straightforward than in St. Petersburg and Tver. Pskov had done very little in the way of implementing an automated system, except for a desktop system designed to support the local BTI. The data in this desktop system was used for initial load of information regarding real estate objects.

In Pskov, though an independent Registration Agency was established to be the focus of registration, certain activities concerning registration of real estate remained in the hands of other agencies, specifically the Land Committee and BTI. However, due to the relative lack of existing automation in these agencies, their integration into the process could be accomplished using client/server technology. This meant that real estate registration information could be maintained and controlled in a central location. Since we were not contending with the requirement to integrate or interface with existing databases, we were able to implement a client/server architecture based on a centralized database. In addition, there was an existing fiber-optics network in place in Pskov, which we were able to use to connect client machines at several agencies with the central server. The resulting configuration is shown in the following diagrams:

REIS Pskov



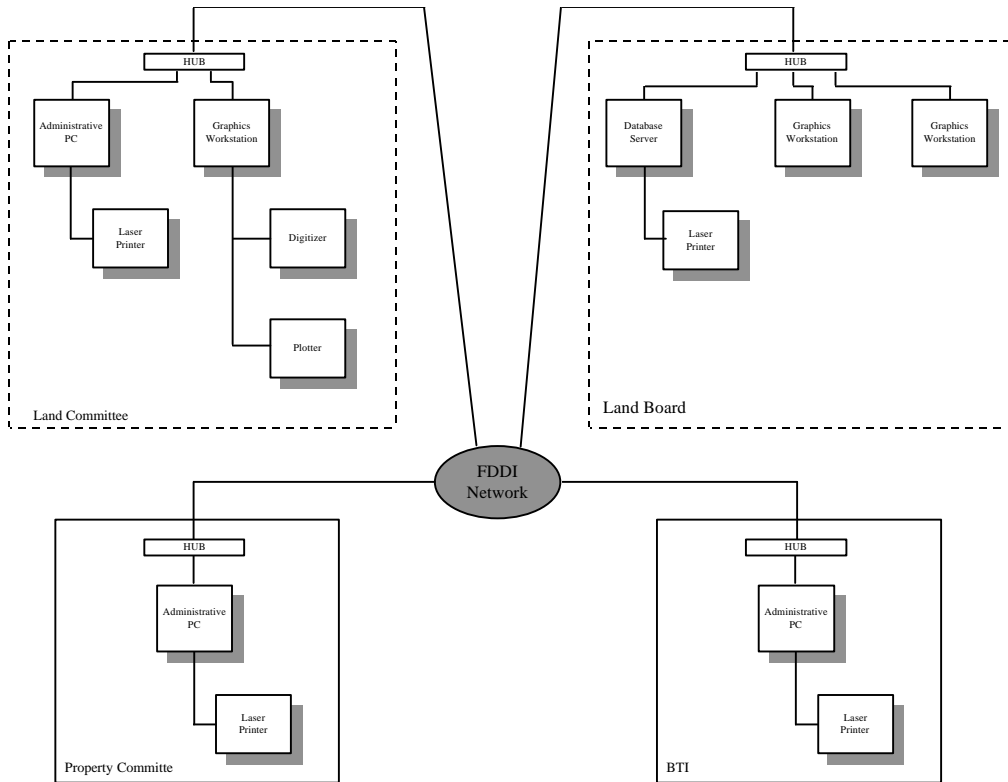


Figure 12. Configuration of the Pskov System

The model used in the design of the Pskov system was based on procedures that were already familiar to personnel in the city administration. In other words, Pskov was accustomed to the concept of files being delivered from one agency to another in order to add approvals or additional information as necessary. Therefore, the system was designed using that as an analog - at certain stages in the registration process, an agency would forward the “file” to another agency to complete a certain part of the procedure - but rather than sending paper documents, this is accomplished electronically. In fact, the information in question never leaves the central database server; instead, an electronic notification appears on a terminal at the destination agency, and the agency is allowed access to the part of the database (for that transaction), that is relevant to them. In this way, the system imitates a familiar procedure, except that little or no exchange of paper needs to be involved.

The internal design of the Pskov system clearly reflects the subject-right-object triad structure discussed earlier in this section:

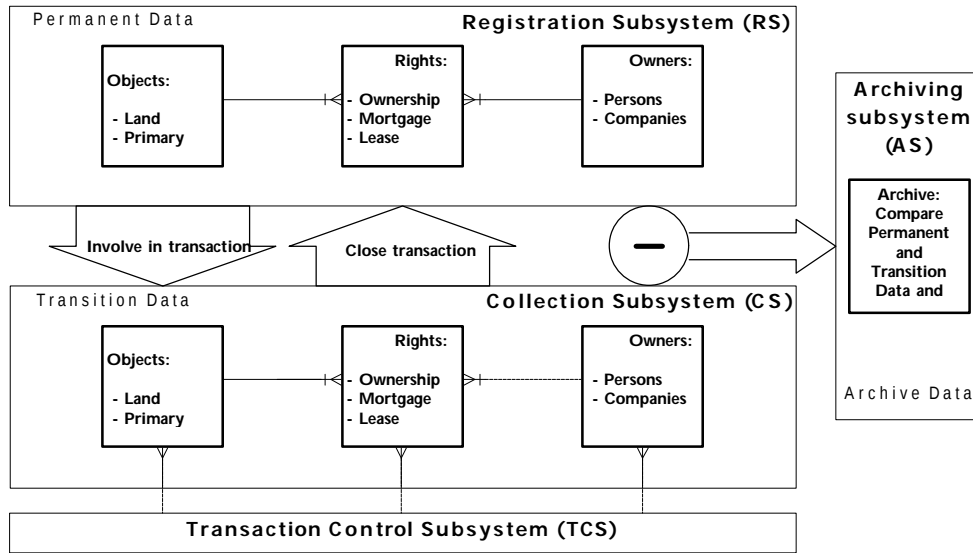


Figure 13. Pskov Internal Data Model

There are some differences of design detail. The Pskov team elected to hold transaction data (i.e. pending (incomplete) transfers of rights) in a completely separate database structure. This “shadow” structure performs data validation, ensured that all approvals are entered, and controls the “forwarding” of transaction data from one agency to another, as described above. The idea is that once data is committed to the permanent database, it can be considered valid, “legal” information. As conceived, the permanent database contains only the current information about the legal status of real estate; information about prior rights holders is held in an archive, which is yet another database structure.

The mapping support for Pskov was developed using MapInfo, MapBasic, and Oracle. A local company (Company 183) was engaged to assist in the digitization of the pilot area. An example of the resulting map support is shown in the figure below.

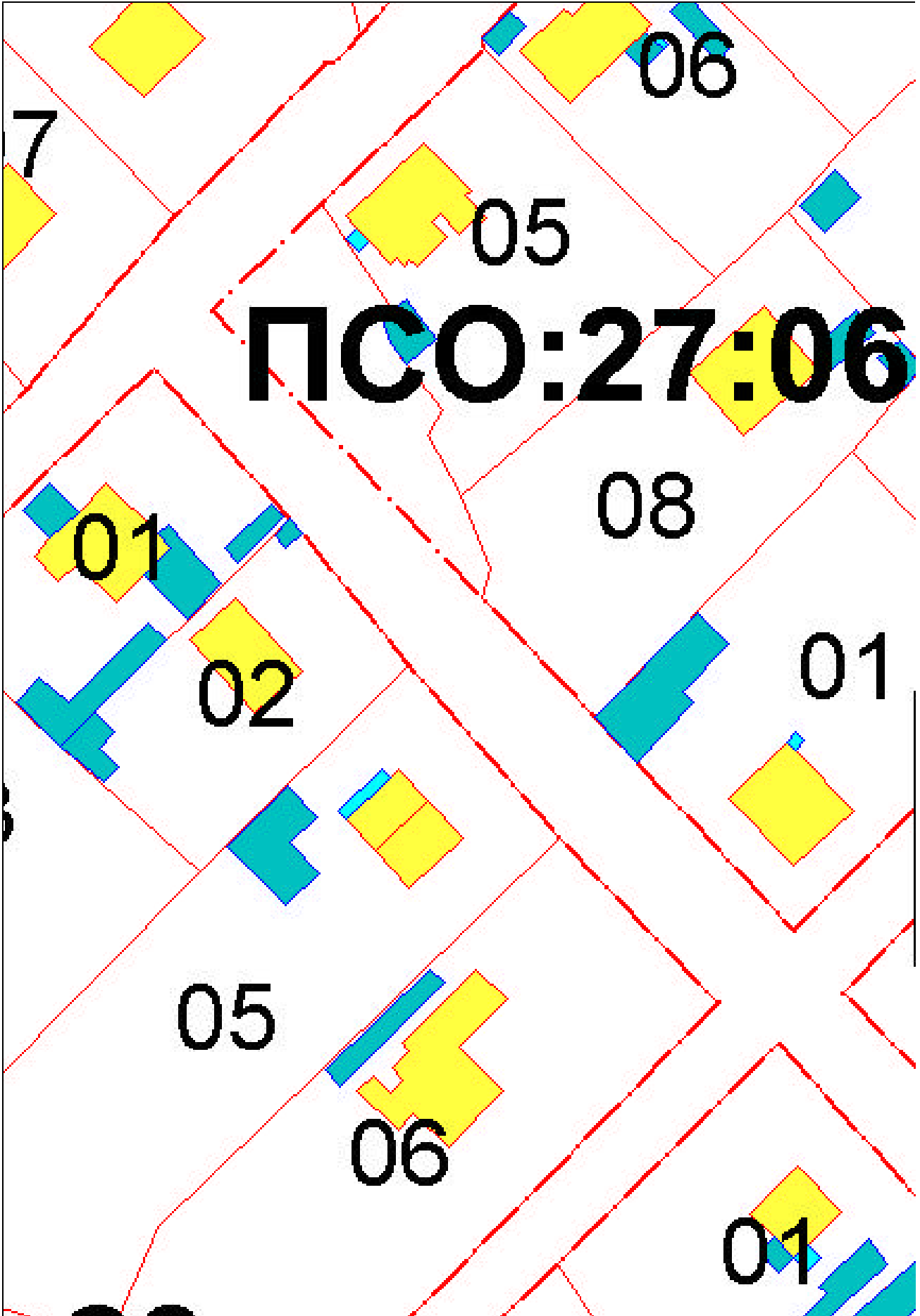


Figure 14. Map support in Pskov

The electronic cadastral map in Pskov is directly linked to the underlying registry database, allowing “point and click” queries about addresses, cadastral IDs, owners of record, etc.

Sequel

The city of St. Petersburg is still trying to resolve number of organizational and legal challenges, connected to the legal validity of electronic information, data sharing formats, and public access to information, that to certain extent put under question the real will of the agencies to share data. Institutional interests are generally beyond the idea of a REIS and the legal uncertainty around the system of ownership registration is encouraging institutional struggle.

Both the Tver Legal Chamber and the Tver REIS software were the first of its kind in Russia. As a result, the experience of Tver in the development of a Registry has had considerable influence on a number of other cities. A number of organizational issues are still open, such as the preparation of new office space for the Registry to allow better access to the public and accommodate all the Registry archives, etc. In addition, the REIS software was used as a basis for the development of a tax system. Under the tax project a considerable amount of tax inventory data were loaded into a database that is shared between the legal and fiscal applications. All of these data will provide information for first registration.

Pskov has been currently preparing a building that to allow to resettle the Land Committee, Property Committee and the Architect’s office together with the Pskov City Registry. Pskov technical specialists are providing technical assistance to the city of Petchore in implementing a registration system for one of the rayons in Pskov oblast.

The example of these cities was followed by Nizhny Novgorod which opened a registry at the beginning of June 1996, and is now to be expanded with a second office. It has been admitted by all three cities (Tver, Nizhny Novgorod and Pskov) that one of the biggest problems for them is to work with the Land Committee in coordinating the allocation of IDs, preparing legal land parcel description and gathering legal ownership information on land parcels. This tension was largely caused by uncertainties as to the final form of Federal law; the Land Committee anticipated, perhaps prematurely, that their organization would be named to handle the legal registry, so they tended to balk at cooperation with other agencies involved in registration.

It should be emphasized that one of the biggest aspect of the project was to impart both domain and technical expertise for running and future development of the REIS and legal registries. The following table summarizes the number of persons trained during implementation of the project:

REIS Training Summary

Training Areas	Persons Trained			Total
	St. Petersburg	Tver	Pskov	

Real Estate Concepts & Principles	4		18	22
Registration Procedures & Practices		37	12	49
PC Computer Systems	41	129	12	182
Communication & Network Administration	117		4	121
Database Training	66	6	19	91
Land Information Systems	n/a	8	5	13
Total Persons Trained	228	180	70	478

The above table does not include persons who were trained under a sister project, the Real Estate Training Institute (RETI). The Institute trained several hundred people (mostly in St. Petersburg) in principals of real estate and registration. Several instructors at the Institute went on to participate in the REIS project.

Conclusions and recommendations for future development

The REIS project provided a considerable amount of valuable experience to guide future projects of this kind in the FSU. The lessons learned encompass institutional issues, project development using foreign consultants, language and cultural barriers, and so forth, which include the following:

- The contrast between our experience in St. Petersburg on one hand, and Tver and Pskov on the other, can only be described as stark. Though project implementation in the two smaller cities was certainly not effortless, the overall atmosphere was positive and supportive. Certain officials in St. Petersburg were ambivalent about the REIS project from the start, and uncertainties surrounding the legal basis for the REIS and political infighting multiplied the difficulties. In retrospect, the City of St. Petersburg probably should not have been selected as a pilot city due to its size alone.
- The first element should be, as in any project in the West, to have an influential “champion”. The literature on systems development is rife with examples of projects in which this basic premise was ignored. In our project, we had identifiable local champions in both Tver and Pskov but, for political reasons, none in St. Petersburg. Lack of a local authority who fully backs the project leads to bottlenecks and lack of cooperation at best, and at worst, an adversarial relationship with local authorities.
- In the design and implementation of automated registration systems in the FSU, one cannot afford to ignore (or minimize) any of the details. For example, after successful development of systems in all three cities, the actual implementation was delayed due to the unavailability of physical premises in which to locate the system/registry.
- The local component of employees should always be maximized. This includes hiring local companies, consultants, etc. However, extreme care must be exercised in the selection of local partners; if a local company has a pre-existing “relationship” with a particular agency, this can lead to suspicion and conflicts with other agencies.

- If foreign consultants are used in a project of this type, we cannot emphasize too strongly that careful attention must be paid to language issues. It is always best if consultants are fluent in the local language; indeed, native speakers are best. At minimum, highly competent interpreters and translators should be available to project consultants to help bridge the inevitable language and cultural barriers. Any international consultant who has missed 50% or more of the information conveyed in a meeting with users because of an inadequate or incompetent interpreter knows the importance of carefully selecting an interpreter, and providing that interpreter with training in the terminology to be used during the project.

Differences in language can also lead to some very subtle problems. For example, our local technical staff in Russia, though most of them were quite fluent in English, would often use the word “perfect” to indicate that a task was completed, rather than the more usual interpretation that the task was fault-free. This is because the word “perfect” in Russian refers to a grammatical verb construct indicating that an action is completed as opposed to on-going.

- Foreign consultants retained for projects of this kind should endeavor to “remain in the background” as much as possible. Western consultants are often viewed as arrogant, and are always viewed as being over-paid, which leads to resentment. Consultants can also expect to encounter a certain amount of xenophobia, though it is usually well hidden.
- Because of language and cultural differences, project development in the FSU is even less of a prescriptive process than it is in Western countries. We recommend that even more emphasis be given to the technique of “prototyping” to communicate envisioned system design to potential users. Modern development frameworks and CASE tools can be of great assistance in this regard because they allow models and user interfaces to be constructed and modified very quickly. Also, data models and business functions can be illustrated graphically, which can help system designers communicate their intentions much more thoroughly.
- The effect of language barriers and training on project schedules cannot be minimized. Though we made every effort to provide development tools that supported the Russian language, the “Russification” of these tools was usually by no means complete. Often, embedded error messages and certain systems documentation could only be provided in English. Among our Russian technical staff, Russian/English dictionaries were prominent on every desk. Language barriers and project time devoted to training probably added 50% to what would be considered a “normal” schedule by Western standards.
- Contemporaneous with our project, there were several other projects in operation - tax, zoning, mortgaging, housing development. We discovered the existence of some of these projects only by accident. Better co-ordination between the projects would have been very beneficial to all of the projects, because a considerable amount of work on interviews, analysis, and design was duplicated or under-utilized.

- The real status of the registry must be established in each locale. Specific issues must be covered in appropriate legislation, including:
 - organizational/legal form;
 - reporting;
 - location and facilities;
 - management;
 - responsibilities;
 - potential users (especially outsiders, congruent with Federal and local laws);
 - access levels;
 - payment for services.

- Anyone who has worked in the FSU (or indeed many Western countries) is familiar with the concept of a “Working Group”. Depending on how it is constituted, the Working Group can be a great benefit or a significant impediment to the establishment of a registration system.

- The system must be fully supported by the local authorities and by all participating agencies, or the “champion” (mentioned above) must have sufficient authority to enforce cooperation. Agency personnel should be actively involved in the system, and should assist in resolving the following:
 - Identifying sources of “real” data for development and testing
 - Helping arrive at a resolution to the issues of sources of common cross-reference tables, and responsibility for the maintenance of these tables
 - Examining and approving elements of the system design, such as screen layouts, reports, functional flow, etc.

- Continuing cooperation between the agencies involved in registration must be insured. Documents and/or legislation must be prepared and put in force that govern the ongoing responsibilities of agencies to cooperate on data sharing, data formats, exchange standards, standard reports, and changes in procedure due to the existence of the registry. The agreement should detail what information the Committees will share, the format of this data, interfaces and who is responsible to maintain them, and who has responsibility/authority to maintain this information. These agreements should also specify the information that will be provided to third parties, the legal status of this information, the conditions under which this information will be made available, and how the information is to be provided (e.g.: if the legal title information is to be provided, must the legal owner give his permission before this information can be released).

- Quality assurance standards and procedures for data examination and certification must be established prior to deployment of a registration system. This refers to trained operators working with established and documented procedures, with all operations subject to continuing review and certification.