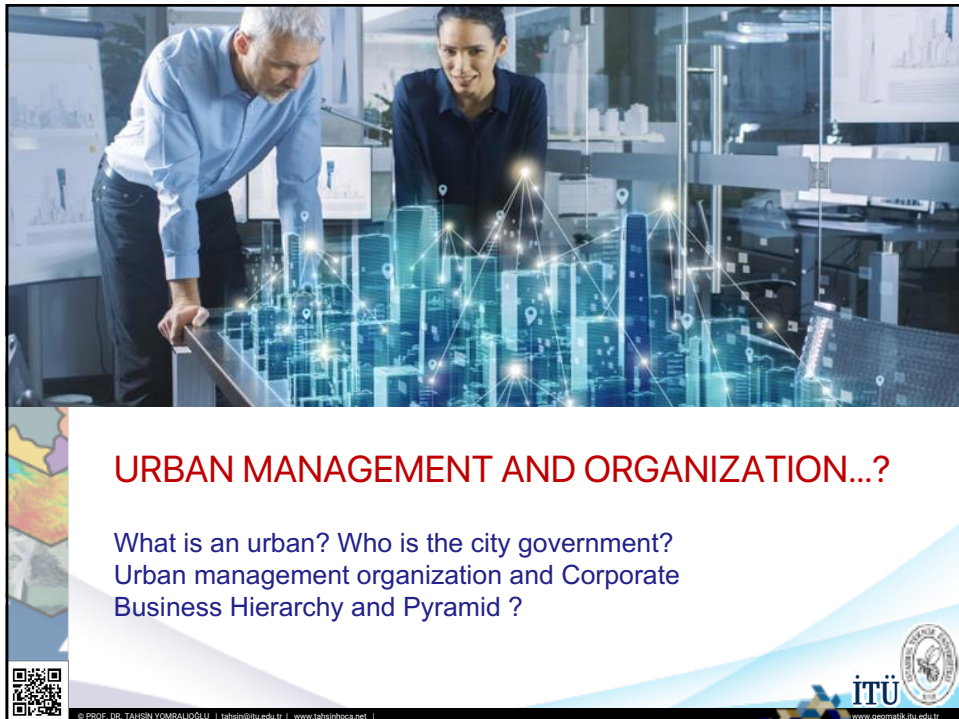




1





2



INTRODUCTION..? (...1)

- With the transition from agricultural society to industrial society, the tradition of people living together and sharing services has begun to form. With the cities established, this phenomenon is being tried to be implemented.
- Today, like all over the world, our country is faced with a rapid population movement towards the city. This mobilization brings along rapid urbanization and irregular urbanization problems.
- It is now more difficult to manage cities, and many complex information needs to be analyzed simultaneously and in a very short time in making administrative and investment decisions.
- The ability of local units operating to meet the different but common demands of the individuals living in the city without interruption is only possible if these units have a healthy command of the **city information** .





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3

INTRODUCTION..? (...2)

- **Urban information** is all phenomena in urban life, from infrastructure to superstructure, from planning to health, from security to transportation, from education to tourism.
- Each function in the services collected, stored, shared and, when necessary, offered to the public by institutions, is directly related to the city information.
- Managing this information, which seems to be in a complex structure, is among the main tasks of **Urban Information Systems**
- Urban information, especially for the effective management and decision-making processes of municipalities, urban facilities, urban planning, environment, disaster prevention, water supply, transportation, etc. provides information. Effective management of infrastructure is always at the forefront in order to establish security mechanisms for municipalities.
- All urban data that can be components of maps, statistics and information systems in the city are produced and managed by each administrative unit (transport, city planning, water supply and drainage, environmental protection, etc.).



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4



WHAT IS an URBAN..?

A place where people of different occupations, who have reached a certain level in terms of area and population, gather...



Madde 1 - Nüfusu iki binden aşağı yurtlara (köy) ve nüfusu iki bin ile yirmi bin arasında olanlara (kasaba) ve yirmi binden çok nüfusu olanlara (şehir) denir. Nüfusu iki binden aşağı olsa dahi belediye teşkilatı mevcut olan nahiye, kaza ve vilayet merkezleri kasaba itibar olunur. Ve Belediye Kanununa tabidir. (442sy. Köy Kanunu, 1924)

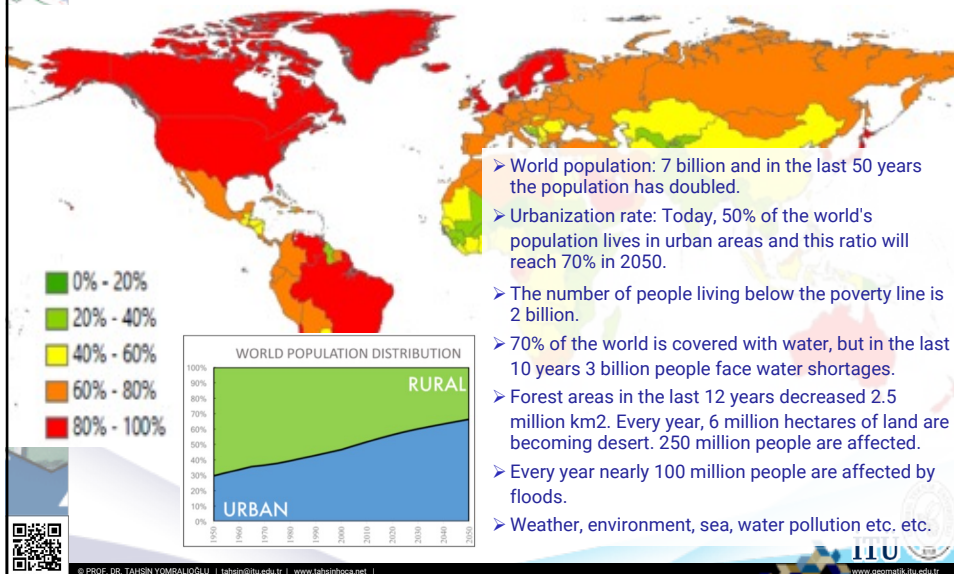
(1) **MANAGEMENT DEFINITION:** a population of more than 20 thousand...

(2) **FUNCTIONAL DESCRIPTION:** It is a type of settlement where non-agricultural production is made, where all production is supervised, distributed, coordinated, and which has reached a certain level in terms of size, density and integration brought by technology.

(3) **AS PLANNING UNIT :** village > town > city > metropolitan

5

Urbanization densities of countries in the world





6



URBAN LAND DEVELOPMENT PROCESS IN TURKEY		1950 - ...	1980 - ...	2000 - ...
 URBAN LAND REGULATION AND APPLICATIONS	 AUTHORIZATION AND MANAGEMENT AND APPLICATIONS	<ul style="list-style-type: none"> ✓ Improving slum areas; ✓ The transformation of the city center into a depression area; ✓ Restructuring of slum areas; ✓ Urban renewal in these areas. 	<ul style="list-style-type: none"> ✓ Urban renovation in areas with low quality of life and in risky areas; ✓ Improvement of rehabilitation and rehabilitation practices; ✓ Special parceling; land arrangements; ✓ Conservation of historic areas, gentrification. 	<ul style="list-style-type: none"> ✓ Renovation in urban areas; ✓ Improvement of apartment areas; Public housing publishing ✓ Redevelopment of new sites and closed settlements; ✓ Protection of historic houses; restoration.
		<ul style="list-style-type: none"> • State Planning Organization • Ministry of Development and Housing • Centrally Planned Development Model • Holistic Planning Approach • Policies and Regulations • Municipality, Slum, Plot Office, Reconstruction - Flats. 	<ul style="list-style-type: none"> • Authorization of planning to local administrations • Planning Applications: Master Development and Implementation Plans; • Legislation: Greater City Municipality, Development, Preservation of Cultural and Natural Heritage, Environment, Bosphorus and Amnesty Law 	<ul style="list-style-type: none"> • Expansion of the authority of metropolitan municipalities • Planning Applications: Strategic Planning; commencement of participatory planning practices • Policies and Regulations: Metropolitan, Municipality, Financial Administrations, Urban Transformation

7

Problems: urbanization ..?

- Urbanization in our country has gained momentum especially since the beginning of 1950s with the migration from the village to the city and this movement is still up to date.
- In particular, in the immigration process leading to industrial cities, local governments failed to provide adequate land supply and infrastructure investments. This has led to unplanned urbanization and rapid urbanization in particular in large cities.
- While the shanty case was originally intended as a shelter, over time, this phenomenon has become a means of rent. Almost all of them are on public lands. Especially with the laws issued as amnesty, new expectations have emerged and the problem of slum has become inextricable.
- Today's cities are growing mostly unplanned and unhealthy. Cities lack many technical and social basic infrastructure and cause environmental problems. Especially with unhealthy urbanization; urban life is at risk, forest areas, water basins, agricultural areas, sites, green and historical textures are destroyed.
- After all; not to re-occur similar cases, to convert cities into contemporary and livable spaces an effective **LAND MANAGEMENT** is needed.

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Problems: urbanization ..?

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Sustainable development...

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Sustainable development...

11 SÜRDÜRÜLEBİLİR ŞEHİRLER VE TOPLULUKLAR

MAKING CITIES AND HUMAN SETTLEMENTS INCLUSIVE, SAFE AND SUSTAINABLE

- Goal 11.1: By 2030, ensure everyone has access to adequate, safe and affordable housing and basic services, and improve slum areas
- ...
- Goal 11.3: By 2030, develop inclusive and sustainable urbanization and capacities for participatory, integrated and sustainable settlement planning and management in all countries
- Goal 11.4: Strengthen efforts to preserve and protect the world's cultural and natural heritage
-
- Target 11.6: To reduce the negative environmental impacts per capita in cities by paying special attention to the management of municipal and other wastes and air quality
- Goal 11.7: By 2030, ensure general access to safe, inclusive and accessible green and public spaces, particularly for women, children, the elderly and the disabled
- ...
- Target 11.b: By 2020, to significantly increase the number of cities and settlements that adopt and implement integrated policies and plans that take into account inclusiveness, resource efficiency, adaptation to climate change, mitigation and resilience to disasters and improve holistic disaster risk management at all levels and apply

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İTÜ

11

Effective Land Management System...?

The effectiveness of a system is only possible if the parts that make up the system are compatible with and complement each other.

```
graph LR; A[Good Land Information] --> B[Better Land Policy]; B --> C[Better Land Management]; C --> D[Better Land Use];
```

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İTÜ

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Urban and spatial information...

The information produced on the basis of the city varies according to the special function types determined by the area, population, density, general and local development programs. The equipment facilities that should be in the settlements with the smallest population unit and their information can be summarized as follows:



- **Administrative facilities:** Central, local organizations, courthouse, tax office, etc.
- **Social facilities:** Club, meeting rooms, charity societies etc.
- **Cultural facilities:** Library, theatre, museum, concert hall, art gallery etc.
- **Industrial facilities:** Factories, small arts districts, various workshops etc.
- **Educational facilities:** High schools, colleges, art schools, universities etc.
- **Health facilities:** Hospitals, health centres, polyclinics, birth homes etc.
- **Commercial facilities:** Department stores, banks, insurance and various agencies, shops selling furniture, household goods, radio, TV, sports and similar goods
- **Recreation and entertainment facilities:** Running and sports facilities, indoor sports hall, entertainment pool, playgrounds, public park and playground etc.





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Urban and spatial information...

- Local governments are the administrative structures that produce the most information about urban equipment facilities and use this information the most.
- The information they produce are the main elements that provide the life of the people such as roads, water, electricity, zoning and sewerage. These institutions have to use the specified information in the management of the city and in solving its problems.
- However, due to the fact that spatial information comes from different sources and they are very diverse, managers have difficulty in making sound decisions and solving problems.
- In our cities, it is practically not possible to collect inventory information about many institutions and organizations from trade to culture, from health to education in a single center. There are often no maps showing this kind of information together. For this reason, it is very difficult to plan and control the spatial information of the city.




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Problems Caused by Lack of Spatial Information

- ❑ **Problems brought about by the growing population in cities;** the increase in demand for services was uncontrollable, **central administrations and local governments were rendered inoperable and planning and control disappeared** as it became impossible to determine needs, resulting in the failure to provide public services even at a minimum level.
- ❑ **Today's life is becoming more and more complicated;** it requires individuals and institutions to be closer to the intensive knowledge of land, underwater and geological surfaces in the light of modern planning, engineering design and projects, and to produce alternative solutions without repeated research with fast precise and economic use.
- ❑ As a result of these searches, systems **based on Information Technologies** emerge as a solution to meet these needs.



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Problems Caused by Lack of Spatial Information


Urban zoning activity and phenomenon; to shape economic, social and cultural life, consciously or unconsciously, planned or unplanned, before physical formatting such as road and building construction.

- The concept of zoning is that the people who are the reason for the existence of the city; how their economic, social, cultural lives and rights are looked after.
- As a result of all this, a number of problems arise in the urbanization process. Land values increase due to the impact of large migrations and births on population growth, high-value land and land, followed by slum problems and space problems in planning.
- Similarly, unsupervised developing cities without spatial knowledge face many problems. It is possible to summarize some of the problems as follows.

- ✓ **Infrastructure and social services problem (water, sewerage and roads),**
- ✓ **Land problem, housing and rent problem,**
- ✓ **Slum problem,**
- ✓ **Settlement and planning problem,**
- ✓ **Environmental and air pollution problem, transportation problem**



*The elimination of all these problems depends on the availability and processing of good information on the subject. An organized management of such information requires a reliable and up-to-date map first. It is possible to process, analyse and meet the necessary geo-information needs together with **urban information systems technology**.*



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Administrative structure of local governments in Türkiye

- ◆ **İL ÖZEL İDARELERİ...**
(442sy Köy K./1924)
- ◆ **BÜYÜKŞEHİRLER BELEDİYELERİ**
(5216 sy, 2004 – 6360 sy, 2012)
- ◆ **İL BELEDİYELERİ...**
(1580sy / 5393sy 1930 / 2012)
- ◆ **İLÇE BELEDİYELERİ...**

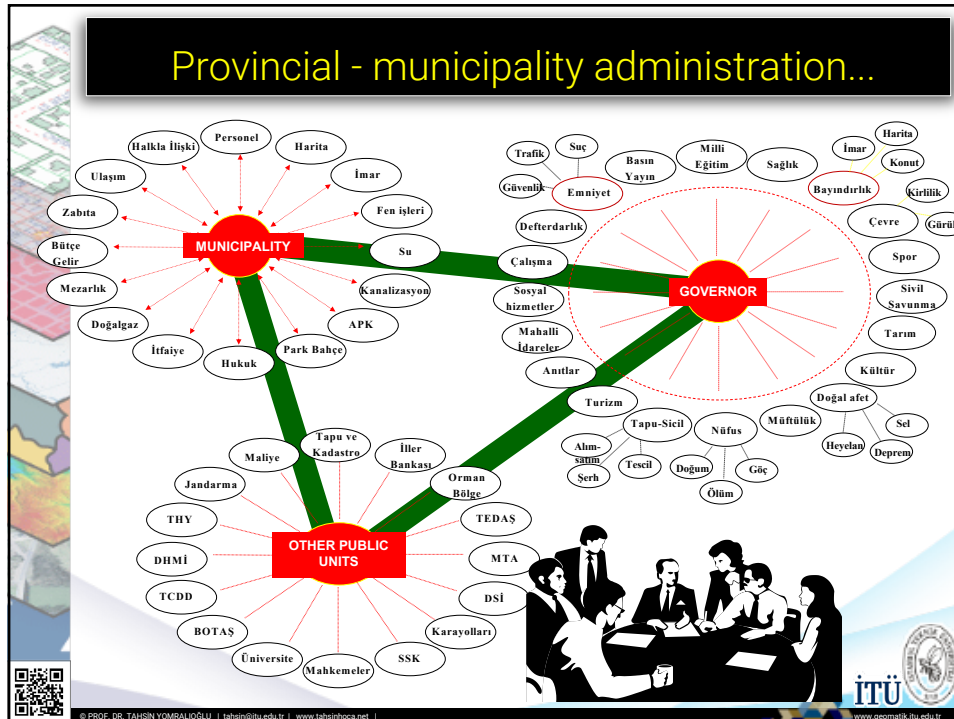
The administration responsible for seeing public services in Türkiye operates on the basis of central management and decentralization. Central administration, mainly ministries and affiliates, local administrations; it consists of provincial special administrations, municipalities and villages. Central administration and local administrations are two complementary elements of the administration and constitute a whole with their establishment and duties. However, there is no division of duties and resources between the central administration and the local administrations in accordance with the nature of the services. The most prominent feature of the administrative structure is its overly centralized nature. Many local services are carried out by central administration units. Local authorities in our country see only 12% of public services, compared to around 50% in developed countries...

BÜYÜKŞEHİR İLLER VE BELEDİYELER

30 büyükşehir belediyesinin sınırları içinde ikamet eden nüfus 64 milyonun üzerindedir. Bir başka deyişle, büyükşehir belediye sınırları içinde ikamet eden nüfus ülke toplam nüfusunun yaklaşık %78'dir. Buna karşılık, diğer 51 ildeki nüfusun toplam nüfusa oranı ise yaklaşık %22'dir.

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Decision-makers...?

"Without information, you can't have an idea..."

In a decision-making event, the first requirement is sufficient information about the event to be decided. In general, all decision-making actions are based on information. The administrator, planner, scientist and judge make their decision based on information. The information is; the answer to one or more of the questions about what, where, why, how, why about any object or event. Again, information is obtained by passing the data collected from a source through a process for a specific purpose.

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Organization of urban information...?

- In order to avoid duplication of activities and to make the best use of available resources in information collection, information collection activities should be organized considering that they will be done only once and will be transferred to other bodies.
- Today's institutions and organizations have aimed to reduce the cost and increase efficiency in the current activities related to information sharing by better understanding the importance of information.
- In order to achieve this, information technology is used.
- Information gathering on a particular area should be carried out by the body that has the closest connection to that area.
- Information on a certain subject should be able to respond to the requests of various units and bodies that need administrative, management and planning.
- It is difficult to organize every subject to meet the needs of various users depending on the base unit. The possible solution is that each institution creates its own spatial information system related to its needs, by obtaining the raw information from their responsible bodies.

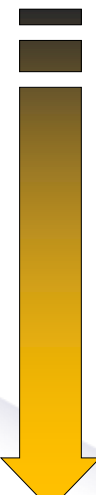
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Institutional organizational structure...


The basic functions of an organization,



1- Operations;
production and/or distribution of the services is the lowest level of management where all activities take place .

2- Management;
middle management level, which relates the lower and upper management levels, where the management, control and implementation functions of the organization's resources in order to carry out the operations ...

3- Policy;
the evaluation of all aspects of the organization or institution within the scope of the long term, the top management level consisting of the top decision-makers where new principles, strategies and policies are put forward...



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Institutional organization management pyramid...



Policy

- Long-term issues that concern the city as a whole
- Urban needs, investment decisions and budget
- Approval of development programs
- Change of plan implementation rules

Management

- Issues that will affect work capacity
- Budget and inventory editing
- Measuring performance
- Labor balance

Operations

- Execution of duties concerning the unit
- Audit notes, field services...
- Receipt of declaration, cashier and account cutting..



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İş Piramidi: Operasyonlar örneği...

İdarenin operasyonlar düzeyine örnek olarak bir kentteki binaların denetleme işlemleri verilebilir. Burada sözü edilen, konut ve ticari amaçlı binaların günlük denetimidir. Denetleyiciler ya da belediyede buna karşılık gelen yapı kontrol elemanları genellikle bilinen bir bölgede görev yaparak o bölgedeki binaların adreslerini, gözlemleri neticesinde ruhsata bağlı olumlu, olumsuz, eksik veya cezai gerektirir bilgileri kayıt altına alırlar. Daha sonra toplanan notlar ve bilgiler maliklere veya sorumlulara iletilerek gereğinin yerine getirilmesi beklenir. Bunlara ilave olarak, denetleyiciler söz konusu gayrimenkulleri yapılan yazılı uyarıların ardından belli bir süre sonra yeniden denetlemek zorundadırlar. Böylece istenen değişikliklerin takibi yapılmış olur. Dolayısıyla denetleyiciler, nereye gideceklerini, neleri gözlemleyip kontrol edeceklerini, ne kadar zaman periyotlarında bu işlemlerin yapılacağını bilmeleri gerekmektedir. Buna göre denetçilerin görevi, yapıların yasalara uygun olup olmadığını gözlemek, kayıt etmek, ilgisini uyarmak ve yeniden kontrol etmektedir. Bu işlemler için gerekli olan çok özel bilgiler; adresler, ceza usulleri ve sürelerdir.

Birimi ilgilendiren görev sonuçları,

Denetlemeler


- işlenen suçlar nelerdir?

Kontrol denetimleri

- hangi binalar yeniden denetimi gerektirir?

Uygulama

- ceza işlemlerinin caydırma gücü nedir?



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İş Piramidi: Yönetim örneği...

Bina denetleyicilerinin üst amirleri yani yöneticileri, özellikle denetleme esnasında birimin isteği doğrultusunda toplanmış olan bilgileri kullanırlar. Birimin sorumlu amiri, arazide denetleme yapacak denetçi personel sayısına göre şubesinin ihtiyaçlarını tespit ederek yıllık plan ve bütçesini hazırlamak durumundadır. Bununla birlikte, tüm denetleyicilerin yöneticisi, her bir denetleyici yaptıkları iş hacmine, kalitesine, harcadığı zamana göre ayrı ayrı değerlendirip, daha fazla denetleyiciye ihtiyaç olup olmadığını ortaya koymalıdır.

İdare içerisindeki tüm yöneticiler düzenli olarak yapılan işleri gözlemleyerek istatistik bilgiler elde ederler. Bu bilgilerden yararlanarak işlemlerde denge sağlayıcı gerekli tedbirleri almak ta yine yöneticilerin görevleridir. Bu bakımdan elde edilen istatistik bilgileri büyük önem taşır. Bilgiler; denetleyici adına, denetleme bölgesine, zaman periyoduna, ceza tipine ve diğer kategorilere göre özetlenerek irdelenebilir.

Performansın ölçülmesi


- Tüm cezai unsurlar denetlendi mi?
- Ne kadar bir yeniden denetim gerekir?
- Yasal uygulama süreçleri ne kadardır?

İşgücü dengesi

- Bir denetleme bölgesinin büyüklüğü ne olmalıdır?
- Bütün denetleyiciler aynı sayıda iş yapmalı mıdır?

Konut programı gelişimi

- Yüksek oranlı suçlar nerelerdedir?
- Tadilat masrafları ne kadardır?



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İş Piramidi: Politika örneği

Politika üreticiler daha çok kent genelini ilgilendiren sorunlar ile kurum çalışmasını zamana bağlı olarak etkileyen konularda görüş ortaya koyarlar. Yıllık bütçe planlaması yapılırken, kurum içindeki birimlerin çalışma performansları, ihtiyaçları ve beklentileri dikkate alınarak mevcut kaynakların durumuna göre birimlere bütçe tahsisi yapılır. Kent genelindeki; suç oranının düşürülmesinden binaların yenilenmesine; ağaç dikiminden ev sahiplerine yapılacak kredi desteğine; veya sağlık yoklamasından binaların denetimine kadar olan sorunlar dikkate alınır. Ulusal fonlardan kurum içindeki ihtiyaçlı birimlere ve kamuya destek sağlanması için gerekli girişimlerde bulunulur.

Bina yoklamaları için birimlerde uygulanmak üzere yeni kurallar ortaya koyulabilir. Bu türden kararların alınabilmesi için daha az detaylandırılmış bilgilerin analiz edilmesi gerekir. Dolayısıyla esas alınacak veriler/bilgiler, yöneticiler ve politika üreticiler için anlaşılır ve kurum bünyesindeki diğer fonksiyonlarla bütünleştirilmiş biçimde olmalıdır.

Kent genelini ilgilendiren uzun dönemli hususlar:

- Yatırım kararları, Kent bütçesi
- Gelişme programlarının onaylanması
- Bina denetim kurallarının değişimi



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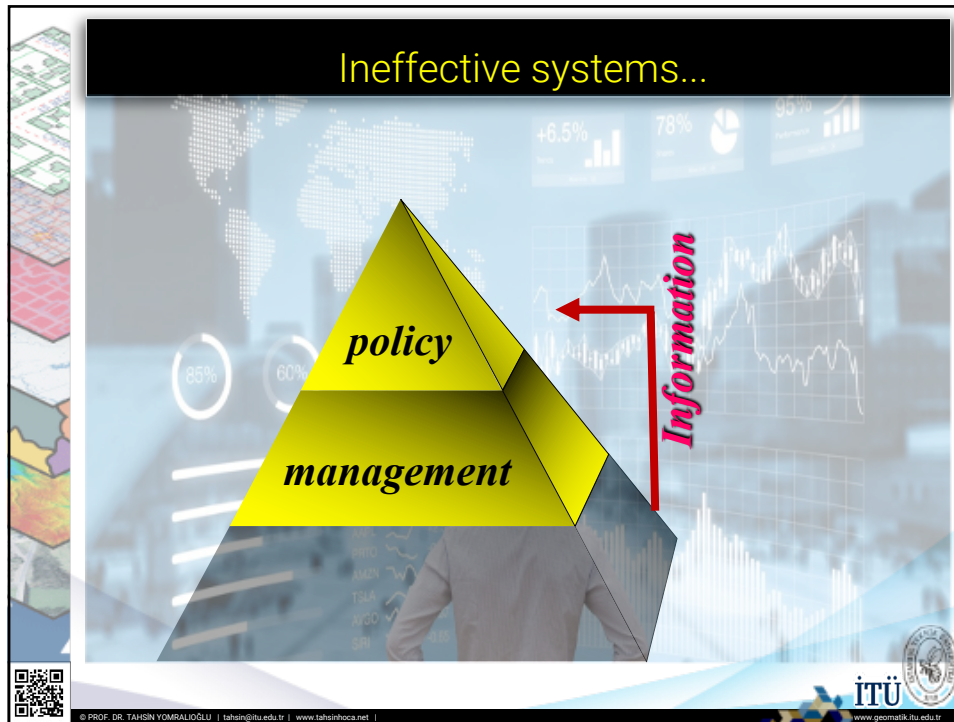
Ineffective systems...



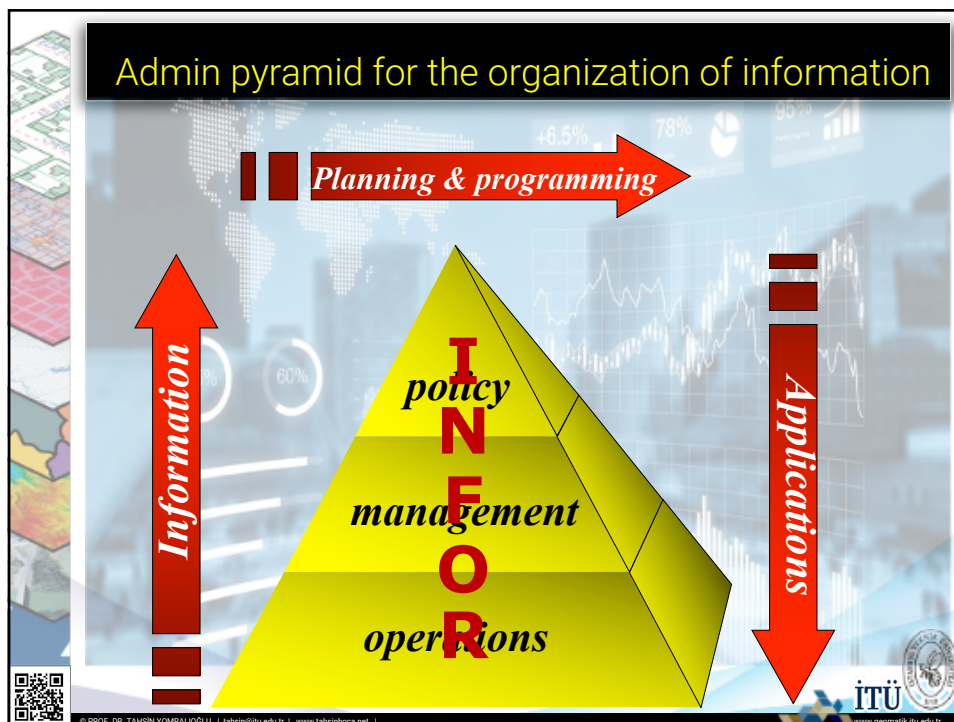
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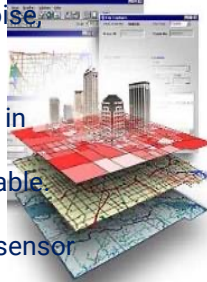


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urban spatial data...

At the core of Urban Information Systems is data.

- More traditional forms of urban data include cadastral data, real estate, tax, revenues, crime statistics, health statistics, construction management (e.g. BIM), planning practices, energy use...
- Urban data also includes the fuzzy concept of “**Big Data**”.
- **Data is collected from:** environmental conditions and processes (eg climate, air quality, water, energy, noise, traffic, people...) through various mobile and fixed devices (eg smartphones, computers, drones).
- Also, collected through numerous physical **sensors** in order to monitor social media users and observe consumer behavior. Some big data is publicly available. However, there are also restrictions. Many local authorities continuously collect dynamic data with sensor networks they place in urban areas.

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urban spatial data...

a) Data on landform

- Topographic data
- Geometric data
- Verbal-descriptive data

b) Ownership data

- Immovable property information
- Boundary and surface of land
- Value of real estate

c) Technical infrastructure data

- Water and sewer data
- Natural gas data
- Cable TV facilities
- Energy facilities
- Traffic facilities
- Industrial facilities
- Trade areas
- Residential areas

d) Data on natural resources

- Geological structure
- Trees and vegetation
- Water resources, amount of water
- Climate


e) Technical factors affecting nature

- Pollution - Noise
- Environmental waste data
- Other environmental polluting factors

f) Economic and socio - political data

- Usage information of immovables
- Zoning information of real estate
- Traffic and transportation information
- Healthcare data
- Education services data
- Data on cultural services
- Population and Employment information

Urban Data



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Mevzuat...?

ÜÇÜNCÜ BÖLÜM
Büyükşehir Belediyesinin Görev, Yetki ve Sorumlulukları
Büyükşehir, ilçe ve ilk kademe belediyelerinin görev ve sorumlulukları

MADDE 7.- Büyükşehir Belediyesinin görev, yetki ve sorumlulukları şunlardır:
a) İlçe ve ilk kademe belediyelerinin görüşlerini alarak büyükşehir belediyesi programlarını ve bunlara uygun olarak bütçesini hazırlamak....
b) Çevre düzeni planına uygun olmak kaydıyla, büyükşehir belediyesi ve nizam ilçe ölçeğinde nazım imar planını yapmak, yaptırmak.....
c) Kanunlarla büyükşehir belediyesine verilmiş görev ve hizmetlerin gereğini ilçe ölçeğinde imar planlarını, parselasyon planlarını ve her türlü imar t...
.....
d) Büyükşehir ulaşım ana planını yapmak veya yaptırmak ve uygulamak.
e) Büyükşehir Belediyesinin yetki alanındaki meydan, bulvar, cadde ve ar...
.....; meydan, bulvar, cadde, yol ve sokak ad ve numaraları ile bu...
gerekçe göstermek.
h) Coğrafi ve kent bilgi sistemlerini kurmak.
i) Sürdürülebilir kalkınma ilkesine uygun olarak çevrenin, tarım alanlarının ve su havzalarının korunmasını sağlamak....; ağaçlandırma yapmak; hafriyat toprağı, moloz, kum ve çakıl depolama alanlarını, odun ve kömür satış ve depolama sahalarının belirlemek, bunların taşınmasında çevre kirliliğine meydan vermeyecek tedbirler almak; büyükşehir katı atık yönetim planını yapmak, yaptırmak; katı atıkların kaynağında toplanması ve aktarma istasyonuna kadar taşınması hariç katı atıkların ve hafriyatın yeniden değerlendirilmesi, depolanması ve bertaraf edilmesine ilişkin hizmetleri yerine getirmek, bu amaçla tesisler kurmak, kurdurmak, işletmek veya işlettırmek; sanayi ve tıbbi atıklara ilişkin hizmetleri yürütmek, bunun için gerekli tesisleri kurmak, kurdurmak, işletmek veya işlettırmek; deniz araçlarının atıklarını toplamak, toplatmak, arıtmak ve bununla ilgili gerekli düzenlemeleri yapmak.

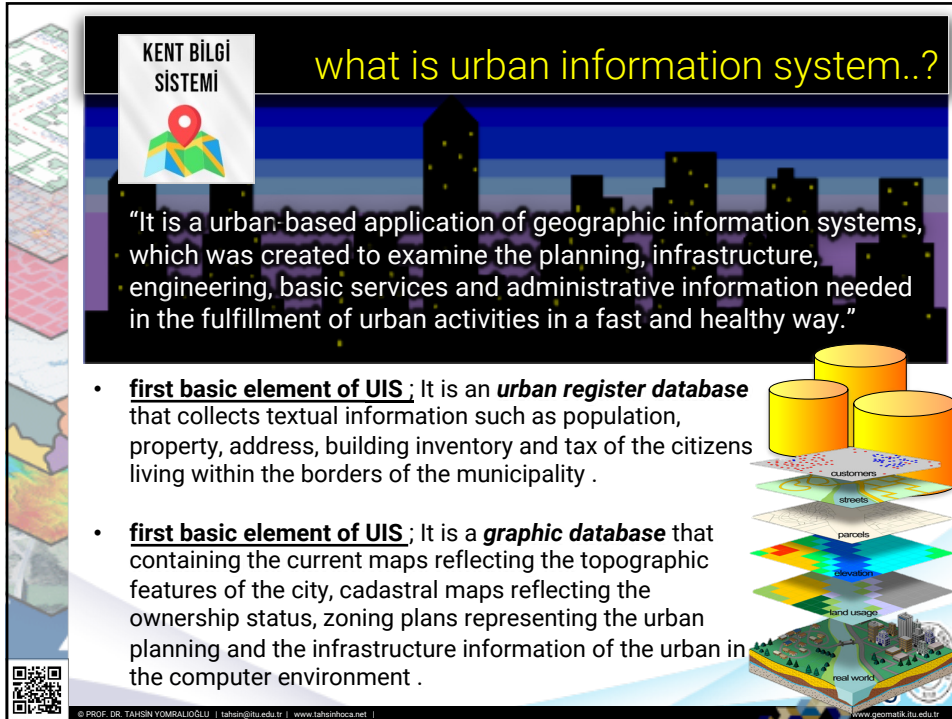
5216 Sayılı BÜYÜKŞEHİR BELEDİYESİ KANUNU
Resmi Gazete: 23.7.2004 - 25531

5393 Sayılı Belediye Kanunu
Madde 14- Belediye, Mahalli müşterek nitelikte olmak şartıyla; a; imar, su ve kanalizasyon, ulaşım gibi kentsel altyapı; coğrafi ve kent bilgi sistemleri..... Hizmetlerini yapar ve yaptırır.

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KENT BİLGİ SİSTEMİ

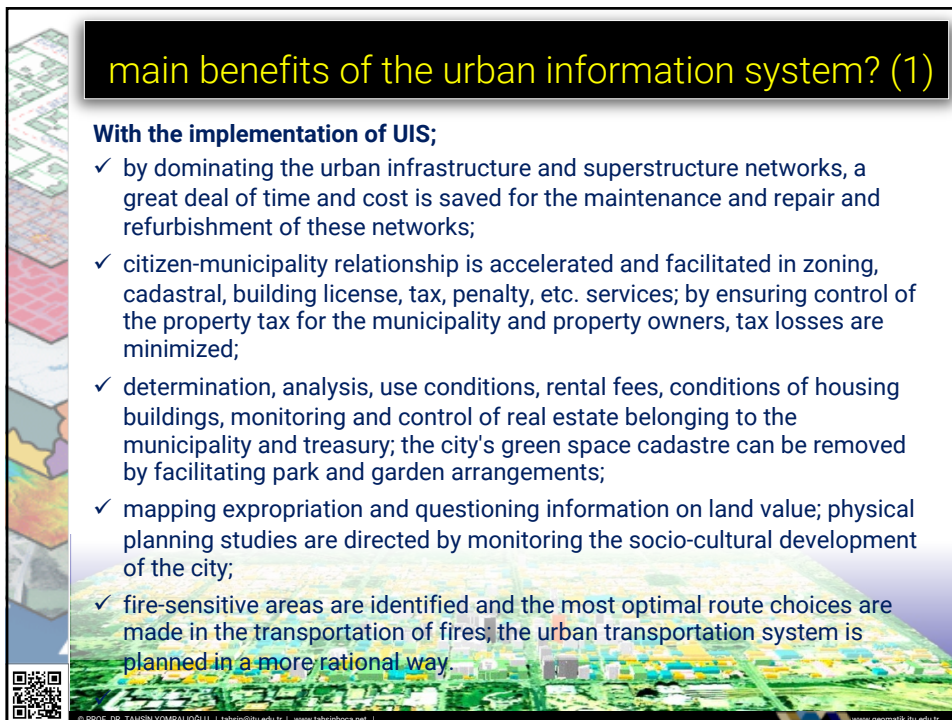
what is urban information system..?

"It is a urban-based application of geographic information systems, which was created to examine the planning, infrastructure, engineering, basic services and administrative information needed in the fulfillment of urban activities in a fast and healthy way."

- **first basic element of UIS** : It is an **urban register database** that collects textual information such as population, property, address, building inventory and tax of the citizens living within the borders of the municipality .
- **first basic element of UIS** : It is a **graphic database** that containing the current maps reflecting the topographic features of the city, cadastral maps reflecting the ownership status, zoning plans representing the urban planning and the infrastructure information of the urban in the computer environment .

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main benefits of the urban information system? (1)

With the implementation of UIS;

- ✓ by dominating the urban infrastructure and superstructure networks, a great deal of time and cost is saved for the maintenance and repair and refurbishment of these networks;
- ✓ citizen-municipality relationship is accelerated and facilitated in zoning, cadastral, building license, tax, penalty, etc. services; by ensuring control of the property tax for the municipality and property owners, tax losses are minimized;
- ✓ determination, analysis, use conditions, rental fees, conditions of housing buildings, monitoring and control of real estate belonging to the municipality and treasury; the city's green space cadastre can be removed by facilitating park and garden arrangements;
- ✓ mapping expropriation and questioning information on land value; physical planning studies are directed by monitoring the socio-cultural development of the city;
- ✓ fire-sensitive areas are identified and the most optimal route choices are made in the transportation of fires; the urban transportation system is planned in a more rational way.

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main benefits of the urban information system? (2)

- ✓ With UIS, all graphic and non-graphic information and documents related to spatial location, ownership and liability; transferred to the computer environment and associated with each other.
- ✓ As a result of this, the activation and survival of the system; especially, which takes an important place in the daily functioning, plans and decisions of the municipality, and takes time; It is possible to carry out many activities that are difficult to monitor and control more quickly, effectively and economically.

Some of the benefits that can be counted in this context are:

- ✓ Urban Managers Dominate the City and More Accurate Decisions Are Made.
- ✓ Saves Time and Effort.
- ✓ Service Quality Increases.
- ✓ Economic Income Increases.
- ✓ Arrangement and Orientation of Urban Zoning Texture is Provided.
- ✓ A Safer and Peaceful City Life is Provided.



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main benefits of the city information system?

Kent Bilgi Sistemi

Belediyedeki verilerin
coğrafi veri ile ilişkisi



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