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RESEARCH PAPER

The Digital Planning Implication on Spatial Justice

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ABSTRACT

BACKGROUND: The government decision-making process regarding planning applications for property development proposals requires a better site context determination, efficient planning information distribution, and a communicative stakeholders' consultation process.

These requirements are the main spatial justice measurements, and it is extraordinarily complex in terms of information types, communication methods, and development stakeholders' interests. It is difficult to manage planning applications for development proposals without making use of planning websites, online mapping programs, case management software, and document management systems.

The paperwork planning process has led to a lack of communication processes, management co-ordination and community involvement, involves many invalid planning applications and is increasingly time consuming. Literature on urban planning systems has not yet addressed the impact of IT programs on the city making process, which is the main purpose of the paper.

METHOD: Based on interpretative, subjective, and qualitative research methods, together with previous digital planning experience, the paper will examine the impact of IT programs on spatial development, with reference to two pillars that stimulate sustainable spatial justice. These are the involvement of spatial information and the planning stakeholders' interest during the planning application process of property development proposals.

RESULT: The paper reveals important sub-topics that would contribute to the impact of digital planning on spatial development. First, it highlights how to prepare planning applications using planning website information. Second, the paper addresses the impact of spatial date software on the planning application

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management process. Lastly, the paper examines how case management software determines inclusive consultation processes.

CONCLUSIONS: Sustainable urban development requires broad information distribution, multi-stakeholder involvement, and complex planning application processes. The planning systems have therefore become a crucial study on urban development studies. The planning systems should question the digitalisation of the planning process, not just to stimulate spatial justice, but also to ensure a sustainable built environment.

KEYWORDS: *Digital Planning; Planning Application; Spatial Justice; Case Management Software; Online Mapping; Planning Website; Document Management System*

INTRODUCTION

Digital systems are the process of managing information collection, analyses, and distribution using online programs, such as web drives, mapping software, case management programs, and document management systems (DMS). The digital planning process is about managing planning applications for development proposals that consist of architecture drawings and support statements for the application; these are prepared to respond to national planning policy frameworks, local development plan policies, land development regulations and design codes (Figure 1).

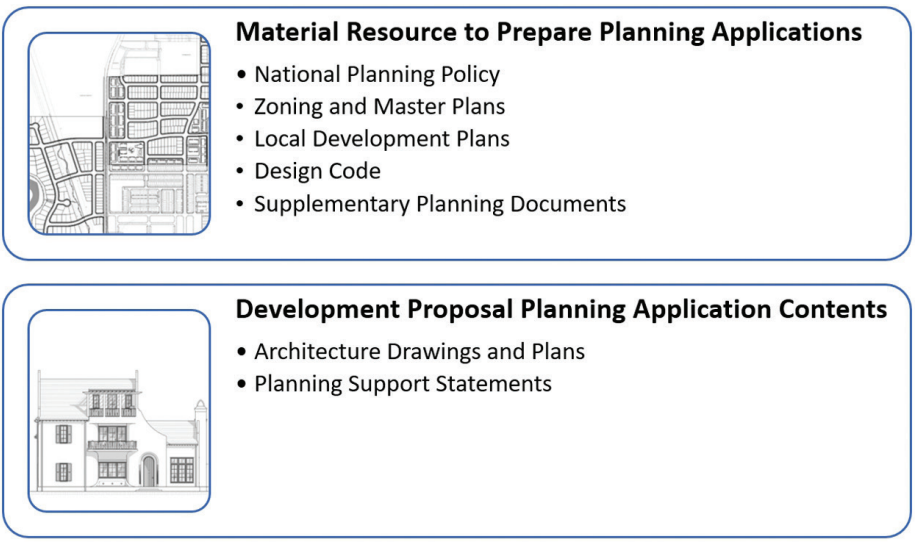

Figure 1: Planning Application Contents and Resources

Source: Constructed by author

The digital planning process consists of the preparation, submission, validation, spatial review, consultation, and determination process. The process starts once individuals, planning applicants, architecture consultants, or development agents decide to prepare a property development proposal that responds to a city's local plans, policies and objectives (Figure 2).

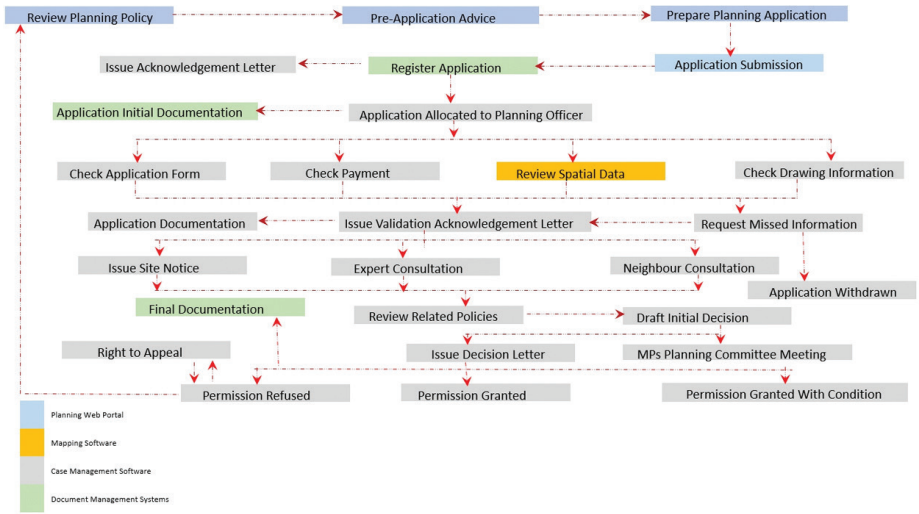

Figure 2: Digital Planning Application Process

Source: Constructed by author

Because the right to information is a cornerstone of good governance, and since the intersectional interest of city stakeholders and the complexity of spatial data becomes the norm in today's world, the lack of an online planning system can lead to numerous problems. In fact, a lack of an online planning system can lead to urban exclusion and lack of capacity to proceed with the preparation, validation, and management of planning applications. The absence of an online planning system can cause uncertainty and corruption during the planning application process. This, in turn, can lead to poor communication and co-ordination during the planning application process.

The right to information becomes a major approach that enables stakeholders to access public sector documents and knowledge that concern their interests, expectations, and needs. The right to information regulations empower the public to challenge government accountability; this also applies to city council planning departments.

For example, a development proposal for an extension to existing heritage buildings required specialised consultation with the public heritage department before they could proceed with a revision of the heritage impact assessment, and local character assessment planning statements. Such situations are also applied to most development proposals located in specific site contexts, such as woodland, mining areas, and industrial sites. It is therefore clear that the right to information is associated with spatial and environmental justice.

ADVANTAGES OF DIGITAL PLANNING PROGRAMS

It is believed that digital planning became a framework that enhanced the efficient use of resources, stakeholder interactions, the decision-making process, and saved time. However, these advantages varied according to planning software types (Figure 3).

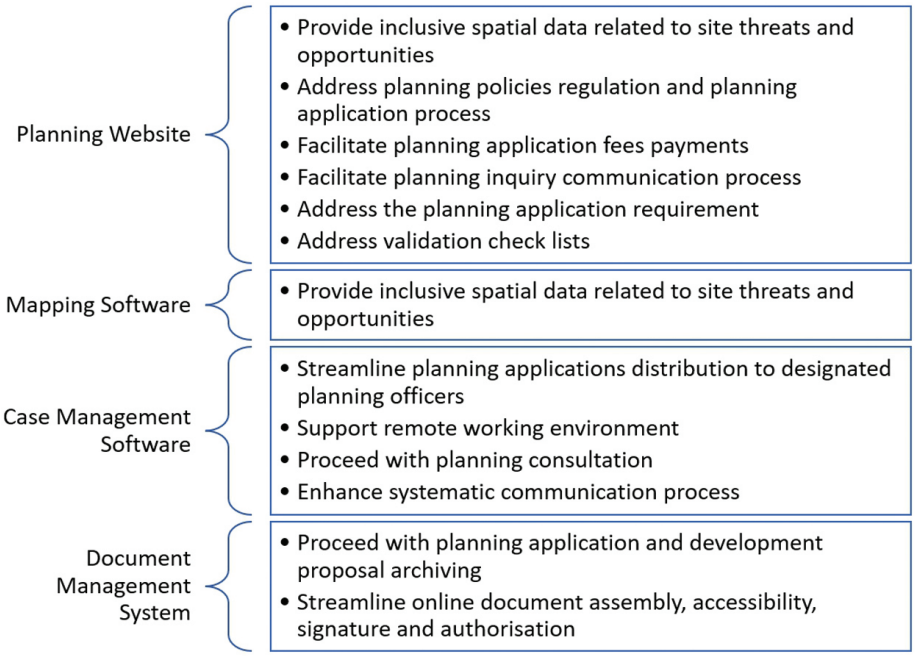

Figure 3: Advantages of Digital Planning Programs

Source: Constructed by author

Planning web portals are where members of the public can access planning policies, contact information, requirements, regulations, and processes through the

city council website. It is clear that such planning websites are developed to serve a certain purpose, to help planning applicants to determine the application type that should be followed, the required fees to pay, minimum drawing standards, and other associated planning documents needed to submit. The planning web portal enhances the submission of planning applications, while reducing the possibility of the planning application being rejected.

Second, the mapping software provides town planning officers and planning application applicants with required spatial data that should be considered, protected, and enhanced. These types of site data are usually grouped into a specific context, such as heritage, mining, and the protection of natural resources, the enhancement of an economic productive zone, and the consideration of flood risk zones, woodland, and biodiversity rich sites.

Third is the case management software that aims to streamline the planning process and distribute the workload equally among planning officers to proceed with the validation, consultation, and determination process. Many types of case management software are flexible enough to stimulate productive planning processes, ensure appropriate information distribution, enhance the automatic communication response, and support a remote working environment.

Finally, DMS is the main software that can ensure the appropriate process of e-signature, authorisation, file contacts, document assembly, document accessibility, development proposal archiving and search engine mechanism to each submitted planning application.

Following the explanation above of the linkage between the right to information and spatial justice, the impact of inclusion planning, and the complexity of planning knowledge, it can be seen that city councils and municipalities, either in developing or developed cities, can make use of digital planning programs to enhance an equitable urban development process.

PLANNING APPLICATION PREPARATION USING DIGITAL PLANNING PROGRAMS

Planning Websites, Case Management Software, and Document Management Systems play a major role in the preparation of planning applications for proposed development. In turn, these online programs help the city council planning department and planning applicants to decide whether the development proposal contains all the information required.

THE ROLE OF PLANNING WEBSITES

Planning websites are websites that are usually managed and owned by city councils, or national-based organisations, and used by planning applicants, developers and architecture consultancy firms. These websites are very dynamic: they contain all planning legislation, planning applications are addressed, latest planning news is uploaded, online planning application forms are accessible, planning department contact information is shown, and online e-submission and related payments are maintained (Figure 4).

- **Review Planning Policies**
- **Pre-Application Advice**
- **Prepare Planning Application**
- **Planning Application Submission**

Figure 4: Planning Website Contents

Source: Constructed by author

However, the preparation of the planning application for any proposed development is set according to the type of city planning system.

On one hand, many city councils developed a regulative city planning system, where the spatial parameters, type of development, and environmental requirements are addressed for each plot of urban land. These urban lands are master planned and zoned by the city council through land development regulations, land use planning, urban land use classification systems, and design code (South Bend, Indiana, 2023). In such cases, all the following documents should be accessible to members of the public in a way that is understandable by the general website users:

- Zoning maps
- Master plans

- Urban land use classification system
- Land development regulations
- Land use planning and management
- Land ownership requirements
- Plans data-based studies
- Design Code

A good example of how a city council gives access to planning regulations to members of the public can be viewed on the Development Service section of the City of Delray Beach city council websites, where all planning legislation, such as Delray Beach CBD Architectural Design Guidelines, Downtown Master Plan, and submission checklist are given (City of Delray Beach, 2023). Another good example has been developed by the City of South Bend, Indiana, where Pre-Approved Building Plan Sets, and Zoning Ordinance are addressed to website users to stimulate planning application permissions (Figure 5).

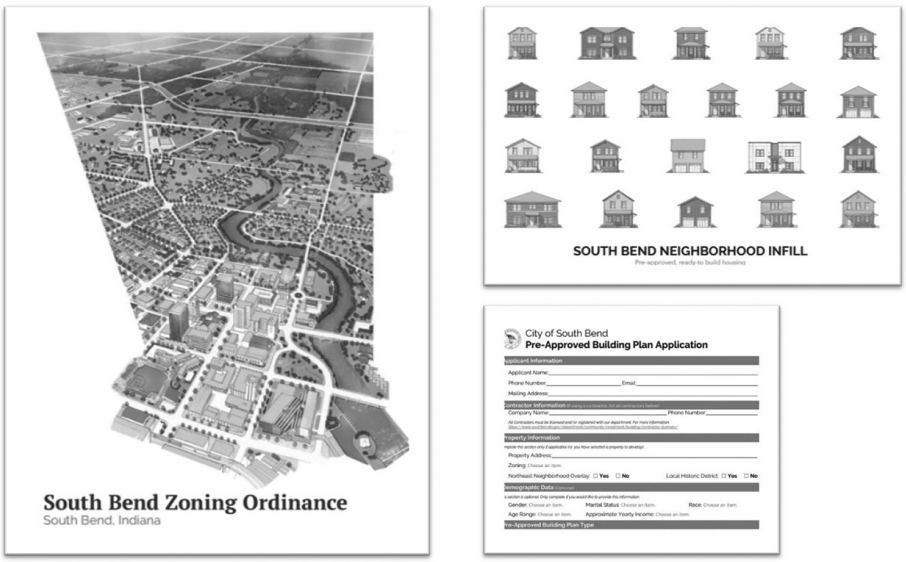

Figure 5: Planning Website Contents: Best Practice
Source: South Bend: Indiana, 2023

In general, US city council planning systems are very restrictive and detrimental. This stimulates the acceptance process, limits the required consultation process, and

minimises the uncertainty of the development proposal. The development proposal type would then be prepared according to the urban land use classification, land development regulations and design code. In addition, the development proposal type can be either a small development type, such as residential, commercial, or mixed used developments, or a large development, such as a multi-use residential complex development, business investment development, or academic city development.

Many city councils develop a discretionary city planning system, where broad planning policies, such as local development plans, supplementary planning documents, and validation check lists, are addressed on the city council website (Liverpool City Council, 2023). In many cases, however, the process of submitting a planning application is controlled by a national-based planning web portal organisation (Planning Portal, 2023), where planning permission requirements and associated planning guidelines are accessible to members of the public.

In both cases, development agencies, architecture consultancies, and planning applicants use planning web portals and websites to proceed with the preparation of the development proposal. They also get pre-application advice to ensure that the mandatory information is included on the planning application prior to proceeding with completing the online planning application form, planning application e-submission, and application e-payment process.

THE ROLE OF CASE MANAGEMENT SOFTWARE

Many software companies develop case management software to help local government manage certain types of applications and communications. This software is flexible enough to be tailored to specific planning application management processes and is widely used by many city council planning departments.

However, in terms of the preparation and e-submission of planning applications, city council planning departments proceed with the planning application validation process using certain types of case management software. The validation process is the process undertaken by the council to check that all required information is included on the planning applications. However, the validation status of the planning application does not mean that planning permission is granted, because permission is subject to the revision of related planning policies, consultation process and field site visit.

The case management software plays a major role in managing the validation process of each planning application. This can be attempted by organising the case management program to allow a space where the e-validation checklist and automatic communication emails can be developed, reviewed, verified, and clarified by the planning departments.

It should be noted that the information required for planning applications differs according to the application type. For example, minor planning applications, such as for a house extension, can be valid if the standard of drawing and application form information meets the validation check lists set by the city council planning department. However, a major planning application, such as for a large property development located within woodland, industrial, or mining zones, can be valid on the submission of planning support statement information that could determine a better adaptation of a site's spatial conditions.

A good case management program is IDOX. This is a very flexible program that can be tailored to stimulate the validation process through a document e-checking process and an automatic communication e-mail system. In summary, the IDOX case management program can be set to proceed with the following validation tasks:

1. Automatic e-mail stating receipt of a planning application;
2. E-checking the information on the planning application form;
3. E-checking of drawing information;
4. E-checking of the planning support statements;
5. Automatic e-mail to inform the applicant whether or not their application is valid;
6. Automatic e-mail about the information required to validate the application;
7. Automatic e-mail about withdrawal of the application if the required information is not submitted.

THE ROLE OF A DOCUMENT MANAGEMENT SYSTEM (DMS)

A document management system is an important part of the digital planning process, because it facilitates the process of planning application documentation, consisting of three main steps:

1. Planning application registration;
2. Documentation of validated planning application;
3. Final planning application documentation.

However, due to complex information and stakeholders' interests, certain issues should be considered prior to setting up the DMS. First is the level of accessibility to each planning application document. Second is the server and storage device capacity. Third is the authorisation for an e-signature. Fourth is the linkage between the planning application documents and the planning website search engine.

Regarding the level of accessibility, it should be noted that during the planning application management process, many city stakeholders are interested in accessing certain information from the development proposal to gain general knowledge on the development proposal outcome, impact, and status. For instance, members of the public are interested in knowing the spatial dimensions of the development proposal taking place in the city. Therefore, the accessibility of planning application drawing plans should be maintained for members of the public. Through linking the planning application documents on the DMS software with the search engine link on the planning websites, development proposal drawings can be made accessible to public website users.

Although drawing plans and application forms are made accessible to the public, other specific planning statement documents would be made accessible to certain public sectors based on common speciality. For example, accessibility to planning support statements, such as a heritage impact assessment, local character assessment, flood risk management, financial viability assessment, environmental impact assessment, and housing need assessment, are subject to related public-led departments.

However, elected city councillors would be allowed to access the drawing plans and other planning documents to have a general idea whether to approve or refuse certain planning applications prior to attending city council planning committee/elected councillors' meetings. Planning department staff are responsible for preparing planning update reports that address the latest submitted planning application information, outcome, and impact. The planning update report would then be sent to the city council planning committee/elected councillors during the city council meetings.

The IT department should maintain the appropriate storage capacity by addressing the maximum size of planning application documents, and the number of planning applications submitted each year. Also, one of the most important issues required when setting up the DMS software is the e-signature authorisation; this should be maintained by fair distribution of planning applications to the assigned planning department staff using the DMS software. The planning application distribution process should ensure that each member of planning department staff only receives their maximum daily workload.

In all cases, the documentation process of the planning application on the DMS software consists of three main steps (Figure 6).

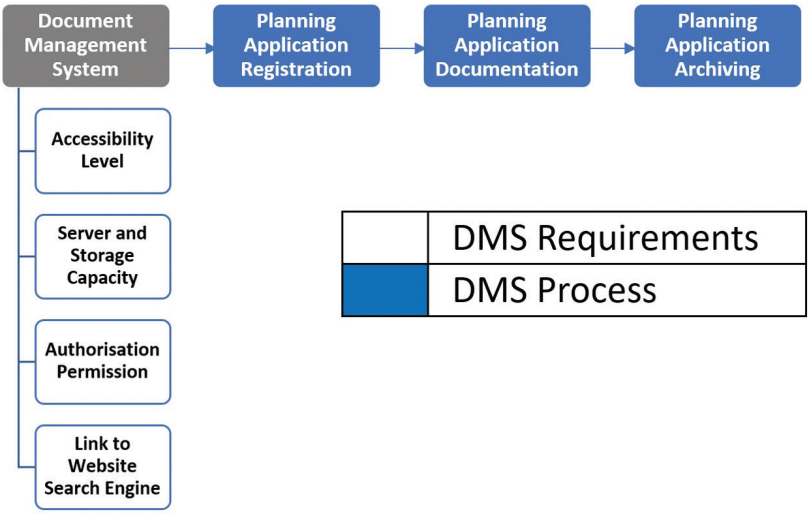

Figure 6: DMS Process and Requirements

Source: Constructed by author

First is the registration of the planning application following the e-submission process where the DMS will generate a registration number according to the development proposal type, location, address, and submission date. The planning officer would then maintain the accessibility level of each document on the planning application.

Second is the initial documentation of the validated planning application. This step takes place following the validation process, where planning application documents are combined and made accessible to public users to get an overview of whether the planning application is valid, invalid, or withdrawn.

Third is the final documentation consisting of document assembly and maintaining the accessibility level to certain city stakeholders. This step begins once the decision is made on the proposed development by the planning department; members of the public can find out whether certain planning applications are refused or permitted.

In conclusion, setting up the DMS software requires a better understanding of stakeholder interest, maximum planning staff workload, and document accessibility level, together with the impact of planning application size and number on server and storage device capacity.

THE COMPLICATIONS OF THE ONLINE MAPPING SOFTWARE AND THE PLANNING APPLICATION PROCESS

A site's spatial information is crucial to determine the planning support statement required to proceed with the validation and consultation process. This is because proposals for a development located on sensitive site areas require certain development measurements to deal with the site's spatial concerns. The spatial site information is identified according to environmental and geographic data using GIS, and visualised mapping programs. The city council planning department can then proceed with the digital planning process with all spatial information on hand.

THE REQUIRED SPATIAL INFORMATION

A site's spatial information is subject to identification and visualisation using the GIS and online mapping software. The required spatial information on city urban boundaries should be classified into eleven criteria, as shown in Table 1.

Table 1: Required Spatial Information

Urban Plot Land
Land Use
Land Address
Land Owner
Land Occupiers
Land Boundary
Land Value
Property Value
Rent Value

Flood Risk Areas
Ponding Site
Coastal Flash Site
River Flood Areas
Urban Flood Areas
Groundwater Flood Site
Heavy Rain Fall Site

Noise Sensitive Site
Academic Site
Industrial Site
Health Care Site

Soil and Land Instability Site
Agricultural Interest Site
Land Instability Areas

Land Contour Line
Land Topography
Land Level

Heritage Site
Heritage Building
Archaeological Site

Road
Pedestrian Lanes
Steet way
Bicycle Lanes
Parking Areas
Steet Names

Transportation
Mobility Type
Travel Frequency
Transportation Stops
Transportation Station

Green Land
Woodland
Trees
Greenfield Land

Wildlife Site
Biodiversity Site
Ecological Site
Waterland
Pound Site

Natural Wealth Resource Site
Mining Site
Oil Site
Livestock Sites

Source: Constructed by author

When city councils lack inclusive spatial information, there would be a reduction in the development proposal's capacity to tackle the site's environmental hazards and to use the site's spatial opportunities. Site spatial mapping is therefore crucial to ensure a sustainable development outcome.

One of the most flexible pieces of software used by city councils to visualise spatial information is the PLANWEB software:

> "designed with input from location intelligence professionals and Local Authorities and is constantly being improved with feedback from a large user base and a dedicated user group. PlanWeb provides immense GIS functionality for Local Authorities" (CDR Group, 2023).

STAKEHOLDER INVOLVEMENT IN THE SPATIAL MAPPING PROCESS

It is believed that the mapping input process requires survey-based GIS knowledge and organisation. However, due to the many types of site spatial information and concerns, public-led departments are involved in the spatial input process, with the collaboration of the GIS organisation ensuring inclusive spatial online mapping that would facilitate better spatial revision of the proposed development's planning application (Figure 7).

Although each city council develops its own online mapping software, the process of spatial data entry, updating and visualisation are developed at the national or county level. This is because most of the site criteria are expanding on wide areas that cover certain city boundaries.

A good example of how a local authority develops highly visualised maps can be traced on the Planning Data Map of the London Local Authority (Figures 8, 9 and 10), where the site's spatial information is mapped under three planning criteria. First, are the areas that must be protected, such as heritage, flood risk, conservation, and woodland sites. Second are sites that would maintain good growth, such as commercial, cultural, and employment sites. Third are the sites with specific site contexts, such as housing and creative enterprise zones.

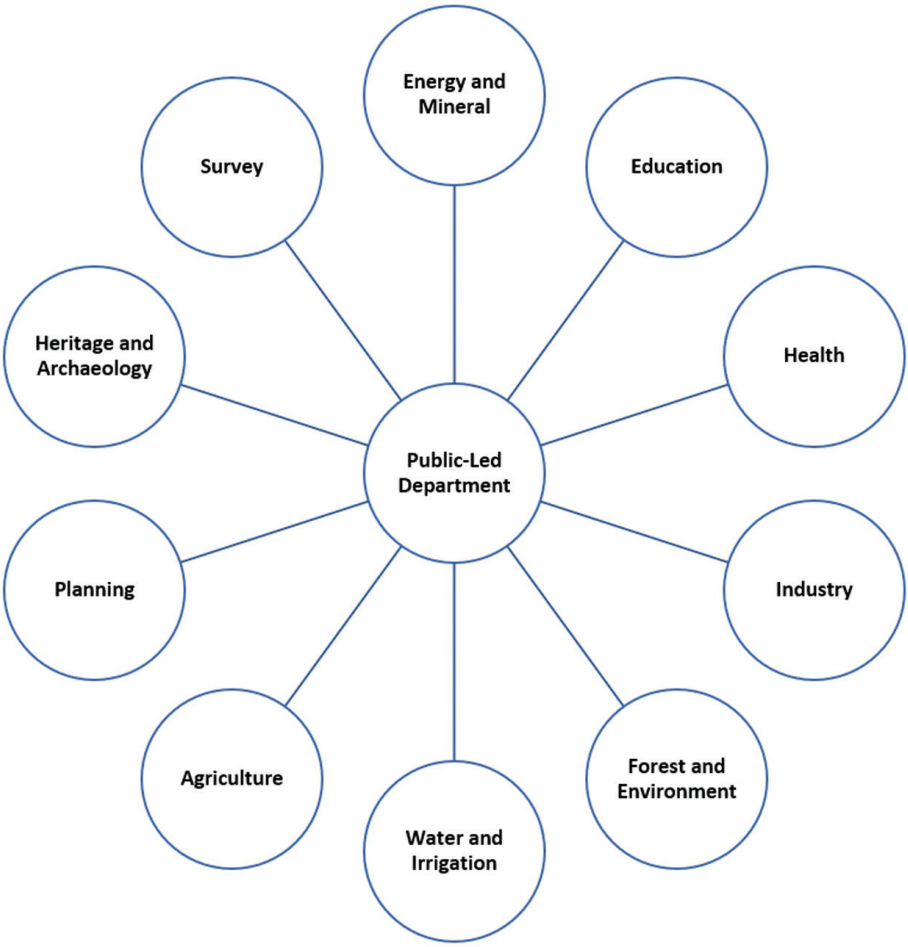

Figure 7: Public-Led Departments Involved in the Online Mapping Process
Source: Constructed by author

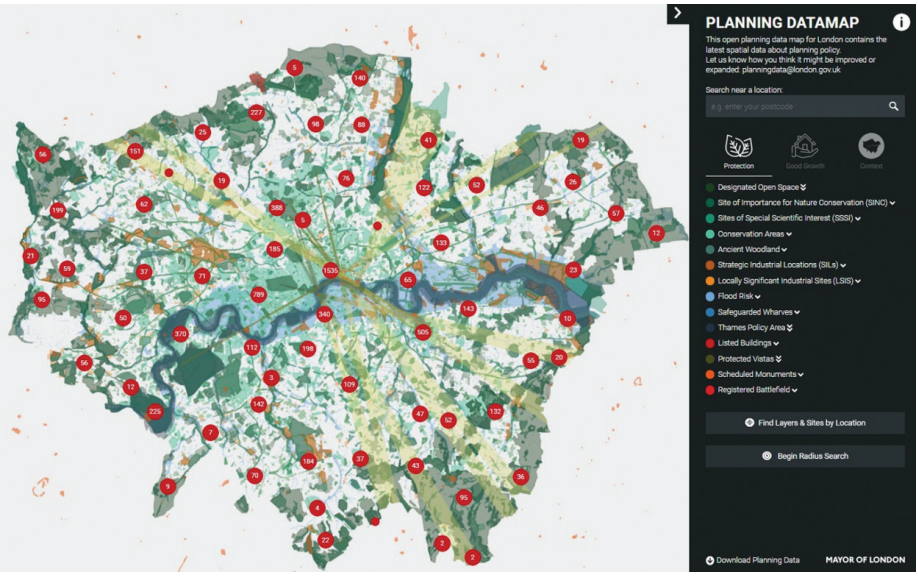

Figure 8: London Map—Protection Areas

Source: London Assembly, 2023

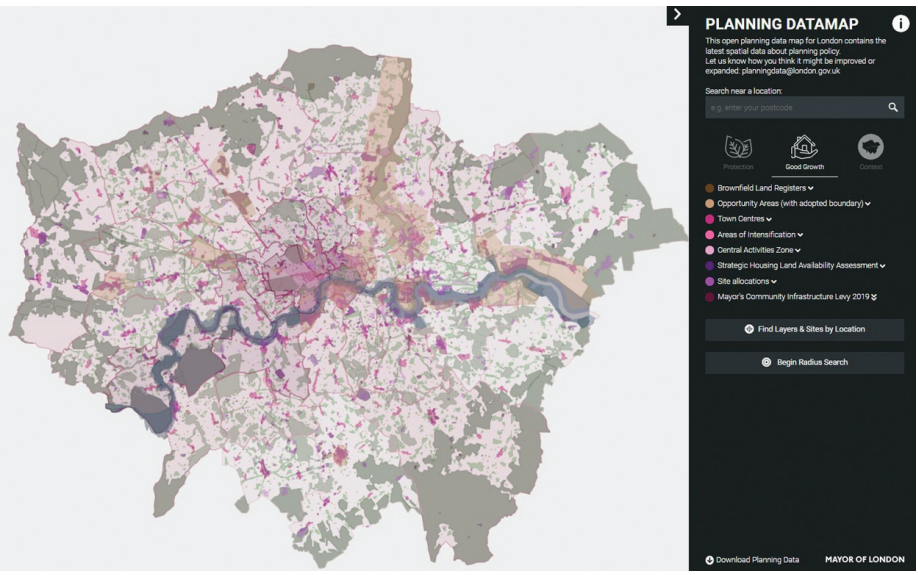

Figure 9: London Map—Good Growth Areas

Source: London Assembly, 2023

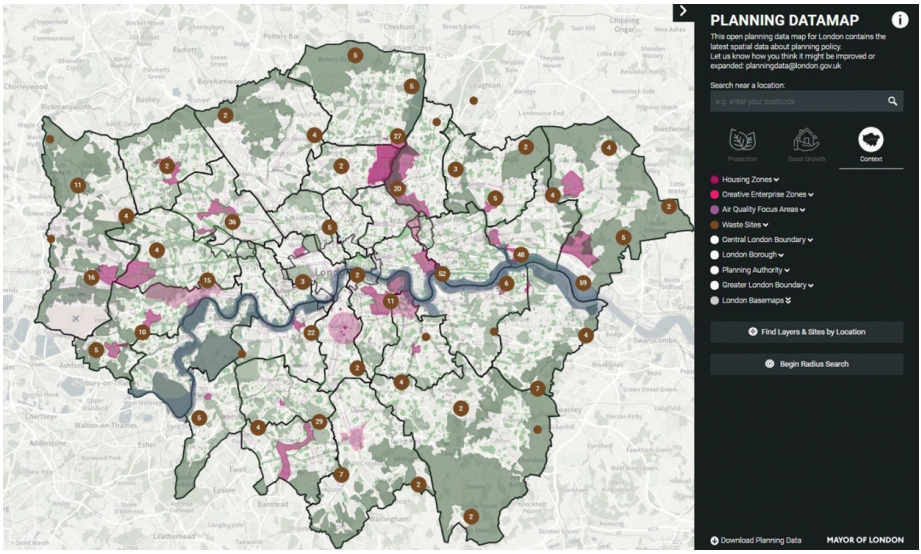

Figure 10: London Map—Site Context
Source: London Assembly, 2023

THE IMPACT OF INCLUSIVE ONLINE SPATIAL MAPS ON DIGITAL PLANNING

Inclusive online mapping had a major impact on the validation and consultation process of planning applications because:

- it informs the type of planning support statement that should be submitted with the planning application;
- it informs better distribution of planning applications to the specified public department;
- it stimulates the determination of neighbouring sites to proceed with the neighbour's consultation process.

After addressing the required information for an inclusive online mapping process, the stakeholders involved in online mapping, and the impact of the inclusive online maps on digital planning, it is clear that inclusive online mapping can ensure a sustainable development outcome that stimulates the city spatial and environmental justice.

HOW CASE MANAGEMENT SOFTWARE CAN DETERMINE AN INCLUSIVE CONSULTATION PROCESS

It is believed that city council local development plans, land development regulations, and design codes set clear measurements to decide whether a proposed development can be granted planning permission or not. However, due to the intersectional planning knowledge, the variety of development proposal site contexts, the diversity of development proposal types, the complexity of the adjoining neighbours' concerns, and the variety of elected councillors' planning interests, managing planning applications should involve many city stakeholders; among these are the public specialised departments, adjoining neighbours, and elected city councillors.

Following the validation process, the planning department reviews the planning policies related to each development proposal by using a Case Management Program to list the associated local planning policies related to the submitted planning application. The planning department then has a general view of whether the planning application meets the related policies.

However, prior to reaching the final decision, and according to site context, development proposal type and location, planning applications should be delivered to the following stakeholders during the consultation process:

- Specialised Public-Led Departments;
- Adjoining Neighbours;
- City Council Planning Committee/Elected Members.

Case Management software, such as IDOX, enables an automatic e-mail process, deadline tracking, site location identification, delivery of application attachments, and e-signature authorisation. These actions are essential to determine appropriate communication during the consultation process.

However, many issues related to the consultation process should be considered prior to setting up the case management programs (Figure 11). First is the consultation order; this determines whether all stakeholders receive the planning application at the same time, or in a specific order following receipt of the response from certain sectors. Second is the frequency of city council planning committee/elected councillors' meetings; these inform the deadline for the planning application consultation process. Third is the preferred communication methods to each stakeholder involved in the consultation process.

Setting the consultation process requires better identification of case management program settings, targeted stakeholders, and other considerations related to meeting frequency, consultation order and communication method.

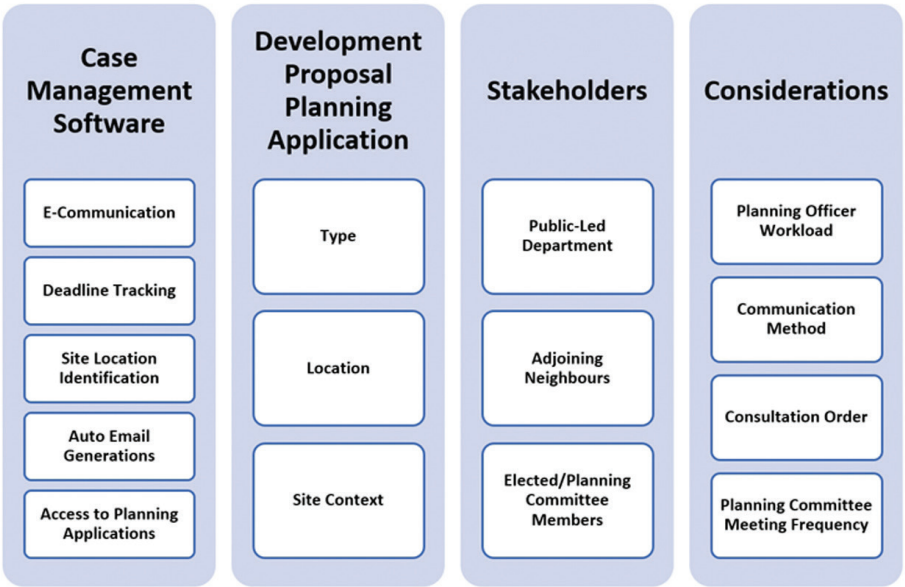

Figure 11: How Case Management Software Manages the Planning Application Consultation Process

Source: Constructed by author

CONCLUSIONS

Taking into consideration the diverse planning stakeholders' interests, complex site information, the variety of development proposal types, and the intersectional planning knowledge fields, digital planning of development proposal planning applications plays a major role in determining inclusive stakeholder involvement, and better revision of the site spatial context. In return, the digital planning process stimulates spatial justice and sustainable urban development. However, this cannot be attempted unless the city council planning department sets appropriate planning portal websites, case management programs, online mapping software and document management systems to co-ordinate the digital planning process.

REFERENCES

CDR Group (2023): *MapInfo® PlanWeb*. Available at: https://www.cdrgroup.co.uk/sales_mi_prod_planweb.htm. Accessed: 2 June 2023.

City of Delray Beach (2023): *Central Business District*. Available at: https://www.delraybeachfl.gov/government/city-departments/development-services/zoning-current-planning/central-business-district. Accessed: 2 June 2023.

Liverpool City Council (2023): *Planning & building control*. Available at: https://www.liverpool.gov.uk/planning-and-building-control/. Accessed: 2 June 2023.

London Assembly (2023): *Planning Datamap, Greater London Authority* [London Spatial Data Map]. Available at: https://apps.london.gov.uk/planning/. Accessed: 2 June 2023.

Planning Portal (2023): *Welcome to the Planning Portal*. Available at: https://www.planningportal.co.uk/. Accessed: 2 June 2023.

South Bend, Indiana (2023): *Build South Bend: Pre-Approved Building Plan Sets*. Available at: https://www.southbendin.gov/bsb/preapprovedplans/. Accessed: 2 June 2023.

South Bend, Indiana (2023): *South Bend Zoning Ordinance*. Available at: http://docs.southbendin.gov/WebLink/0/edoc/348545/21-0%20South%20Bend%20Zoning%20Ordinance%202021.09-27%20(Current).pdf. Accessed: 2 Jun 2023.

BIOGRAPHY

Khalafalla Omer has an MSc in Urban Development and Planning, an MBA in Project Management, and a BSc in Architecture and Spatial Planning. He is currently an architect and urban planner, and a PhD researcher at Salford University, UK. Previously he worked in all aspects of planning, including reviewing planning policies, developing neighbourhood plans and architectural designs. Khalafalla uses Autocad, PlanWeb, IDOC and DMS software, and has general skills in time management, negotiating and teamworking. He is a member of the Royal Town Planning Institute, the Urban Design Network, Congress of New Urbanism, and the International Union of Architects.

