STREAMLINING THE DEVELOPMENT APPROVALS SYSTEM IN ONTARIO

Modernizing, Digitizing, and E-permitting

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RESIDENTIAL CONSTRUCTION COUNCIL OF ONTARIO

Executive Summary

In the next few decades, Canada will see a dramatic increase in demand for housing, primarily in Ontario and Alberta. Regulatory systems need to adapt promptly to ensure this population growth is used to support economic development and global competitiveness. Digitized development approval platforms supported by performance - and risk-based regulations are basic requirements to ensure Canada's residential building sector does not fall further behind other OECD nations. E-permitting systems offer a long list of benefits, leading to increased efficiency and transparency, and decreased process timelines. Global leaders like Singapore and Australia are useful illustrations of the necessary steps and vast benefits regarding digitized approval systems. One Ontario, an initiative launched by a consortium of stakeholders strives to mend the gap between increasing construction applications and overwhelmed municipal resources. This consortium of industry leaders aims to establish clear guidelines for building related data exchanges, necessary for a digital permitting system. This initiative is part of a holistic approach to establish a comprehensive and efficient e-permitting system, to exploit Ontario's full potential in the building industry, which acts as the backbone of the economy.

The Problem

In 2018, Canada's *Economic Strategy Roundtable* forged a roadmap to encourage development and attract additional investment in Canada's economy. The collaborative initiative between government and industry, established by the *Department of Innovation, Science and Economic Development* outlines key areas to drive Canada's global competitiveness. These include establishing agile regulations which support development, promoting technology adoption and digitization in all sectors, and digital and physical infrastructure development. Targeting these areas as opportunities for growth is expected to dramatically increase Canada's global competitiveness, as measured in the World Bank's *Ease of Doing Business* Report, branding Canada as an attractive candidate for business investment.

Canada's complex regulatory system is identified by the Roundtable as one of the most prominent deterrents of foreign investors in Canadian projects, and the leading barrier to global competitiveness. Redundant procedures and lengthy timelines lead to unnecessary administrative burdens, ultimately resulting in an inefficient approvals system. Conservative technology solutions regarding these regulatory barriers are greatly favoured over innovative ones, despite the high potential rewards. This culminates in inadequate growth in much-needed physical and digital infrastructure, and dramatically untapped competitive potential (Canada's Economic Strategy Tables, 2018).

These regulatory inefficiencies are especially prominent when dealing with development approvals. In Ontario, obtaining a site plan approval from municipal authorities almost always exceeds the established 30-day timeline, taking up to 180 days on average; this is the longest of the 12 procedures required in the building approvals process in Ontario. The entire approvals process takes an average of 249 days, almost 100 days more than the average taken for other OECD countries. Furthermore, these barriers to development significantly deter investors, lead

to increasing project costs and uncertainty, as well as hindering economic growth in Ontario (CANCEA, 2020). Problems afforded by the antiquated approvals process in Ontario limit the development of housing supply to meet growing demand, limiting potential property tax revenues, and reducing development charges revenues (RESCON & Ryerson Centre for Urban Research and Land Development, 2017; World Bank, 2020).

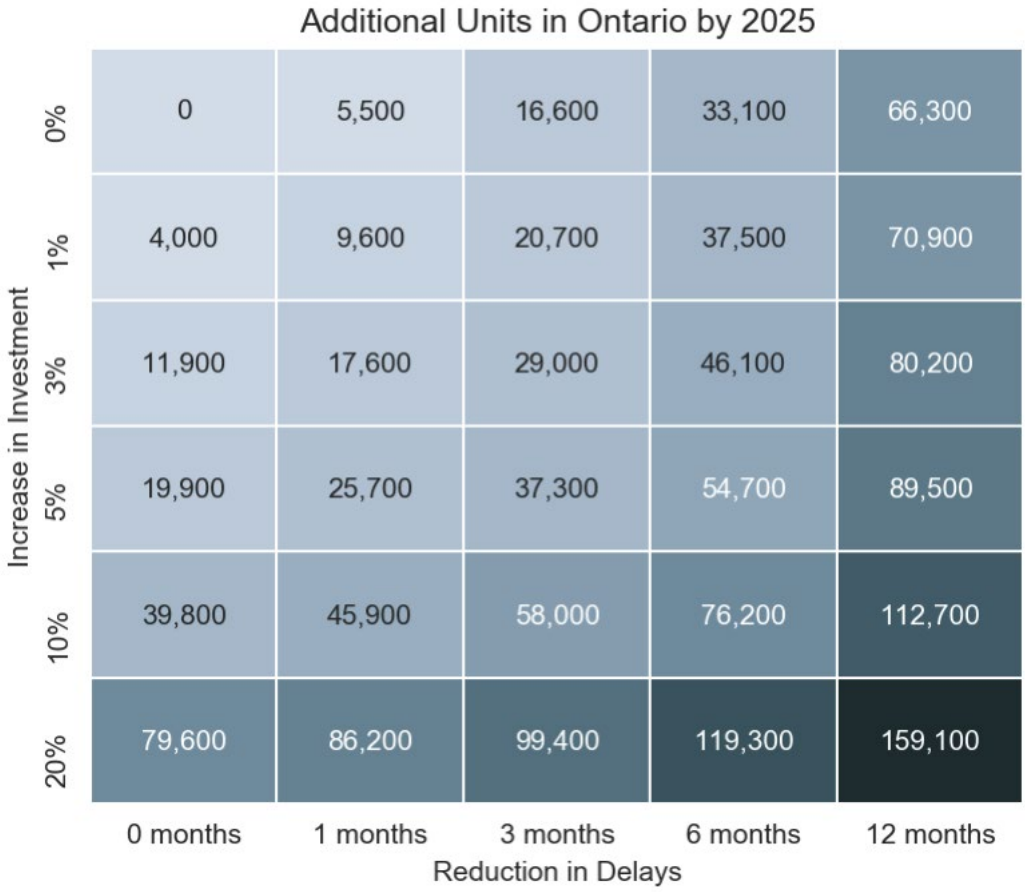

Figure 1: The impact of various levels of investment in co-ordination with various reductions in delays in the housing stock

When surveyed, the majority of applicant's for construction approvals in Ontario state that resubmission of permit plans is often requested by municipal authorities, emphasizing the need for more transparent application processes (RESCON & Ryerson Centre for Urban Research and Land Development, 2017)**.**

The World Bank's annual *Doing Business Report* ranks the ease of doing business in 190 countries based on several metrics, such as starting a business, registering a property, getting credit, and dealing with construction permits, culminating in a general ranking of countries' "ease of doing business" (World Bank, 2020). Since these key areas for improvement were outlined by the Roundtable in 2018, Canada, represented specifically by Toronto, has dropped from 18th to

23rd in the *Ease of Doing Business* general ranking, and from 54th to 64th in the ease of dealing with construction permits (Canada's Economic Strategy Tables, 2018; World Bank, 2020). It seems that substantial progress is needed to encourage these opportunities for growth in Canada. World leaders such as Singapore and Australia rank 5th and 11th, respectively, and have maintained or risen in their ranking regarding dealing with development approvals in recent years, offering useful case studies for e-permitting development and integration (World Bank, 2020).

Due to large-scale immigration, Canada's population is expected to grow significantly over the next 50 years. Various models predict that Canada's population will exceed 55 million by mid-century. While this may not seem like a high number relative to our sizeable neighbours, this represents an approximate 50% increase in the national population. Ontario and Alberta alone are expected to account for over half of this projected growth (Statstics Canada, 2011) placing pressure on the already lengthy development approvals process. Regulations regarding residential development in Canada serve as significant barriers to development and innovation, and support rising housing prices. More complex building regulations are associated with higher regulatory and duplicative burdens, as well as lower levels of innovation (RESCON & Ryerson Centre for Urban Research and Land Development, 2017; World Bank, 2020). The current approvals process is cumbersome and time consuming. These inefficiencies also limit innovation because overly prescriptive regulations and processes prompt developers to stick to conservative project plans, as the approvals process for innovative projects is far too uncertain. With the current complex and inefficient regulation and planning system in Ontario, building and planning authorities will likely face more severe bottlenecks, as this expanding population will be accompanied by a growing volume of construction applications (Association of Municipalities Ontario, 2020; McCabe & Lyall, 2020; RESCON, 2018). Given this foresight, building and planning authorities need to pursue modern and more comprehensive reforms immediately.

The 2016 *Competitiveness Report by* KPMG indicates that construction costs and permitting process were among the top factors when determining the location for a start-up (KPMG, 2016). Despite the low-ranking regarding dealing with construction permits, when all metrics are weighed, Canada is still ranked the 23rd best country globally for doing business. This indicates that when the significant barriers regarding infrastructure development are appropriately addressed, Canada has great potential to be a global leader in innovation, and an extremely attractive candidate to national and international investors for doing business (World Bank, 2020).

A Potential Solution

Frustration with the current tedious permitting system, and demand for streamlined and digitized permitting systems, have been growing in recent years (McCabe & Lyall, 2020). Electronic permitting offers an automated and streamlined solution to current inefficiencies in the building permitting process. The integration of computer-based tools can effectively replace many traditional systems. These can be single software platforms for tracking permits or

numerous specialized tools for plan review, inspections, and fee calculation, etc. (The U.S. Department of Housing and Urban Development, 2002).

E-permitting systems are typically implemented as part of a streamlining initiative, or to address specific deficiencies such as insufficient administrative resources or unco-ordinated workflows. E-permitting systems greatly increase the efficiency of the permitting process. These systems generally require standardized building site information, allowing for more thorough and timely plan submissions and reviews. Administrative resources are more efficiently used, as there is less duplication of effort. Thorough e-permitting systems include internal management tools to provide metrics for the assessment and analysis of departmental workflow efficiencies (The U.S. Department of Housing and Urban Development, 2002). The most advanced e-permitting systems such as Singapore's CORONET, Hong Kong's BRAVO, and Finland's EVOLTA include GIS capabilities and automated model checking (World Bank Group, 2020).

Facilitating BIM Adoption in South Korea

E-permitting systems rely on extensive data and technology standards. In South Korea, various programs have been implemented to help AEC industries transition smoothly from traditional two-dimensional design and construction practices to BIM. The Ministry of Land, Infrastructure and Transport has dedicated (U.S.) $5.8 million to develop BIM-based building design standards. BIM has been compulsory for all public-sector projects over costing over $50 million since 2016.

As documented by the World Bank, effective communication of regulatory information is correlated with increased compliance with regulatory processes, as application requirements are transparent and accessible, decreasing the need for interpretations and resubmissions. E-permitting allows for greater system transparency, thereby streamlining the approvals process through greater accountability. Information and communications technology (ICT) can increase process transparency by making zoning, building regulation, and permitting information more accessible. Additionally, portals established at the regional level are a cost-effective means of standardizing the approvals process over diverse jurisdictions, decreasing the impact of uneven resource distribution (World Bank, 2018).

BIM integration Strategy in the United Kingdom

The national 2011 BIM Strategy in the United Kingdom is considered one of the most ambitious and advanced centrally driven BIM programs in the world. As of 2016, governments in the U.K. utilize fully collaborative 3D BIM. A minimum of Level 2 BIM was implemented on all government construction projects. This requirement led to an overall increase in the adoption of BIM processes, propelling BIM usage levels in the U.K. to match those in Singapore, the U.S. and Scandinavia. The first step of this strategy involved the development of information standards and definitions to support BIM level 2 integration. This is expected to result in a process cost saving of approximately 20%.

When approval agencies and municipalities can easily share information, approvals occur much faster than with manual processes. Application reviews can occur concurrently as opposed to sequentially, allowing applicants to submit applications to a single portal. When innovations such as BIM are integrated, these benefits are compounded (World Bank Group, 2018). A recent report by the Canadian Centre for Economic Analysis (CANCEA) finds that reducing delays in development approvals by only six months would decrease overall approvals costs, freeing up capital equivalent to almost 10% of current infrastructure investments. When this available investment potential is compounded with a six-month reduction in the approval process, an additional 33,100 more homes can be delivered within the next five years. Furthermore, decreasing uncertainty in the approvals process would drive investment in Ontario's infrastructure. This would provide much-needed housing, increase employment opportunities and tax revenues, and support additional economic activity valued at approximately (Cdn.) $17.2 billion (Canadian Centre for Economic Analysis, 2020).

5-year Scenario/Metric		Impacts	
Homes	Process streamlined by 6 months	33,100	More homes. 80,400 additional people able to be housed
	Increased investment by 10%	39,800	More homes. 96,500 additional people able to be housed
	Both	76,200	More homes. 184,900 additional people able to be housed
Economics with 6 months reduction and 10% increase in investment	Annual GDP	$11.6B	Additional economic activity supports $1.8B of private investment
	Jobs	105,000	Supported jobs provide over $6.2B of wages annually
	Taxation revenue	$2.7B	Federal and Ontario governments could receive $1.5B and $1.2B additional revenue annually

Figure 2: Impact of streamlining and increased investment within five years (CANCEA, 2020)

20-year Scenario/Metric		Impacts	
Homes	Process streamlined by 6 months	33,100	More homes. 80,400 people able to be housed by 2040
	Increased investment by 10%	139,200	More homes. 337,700 additional people able to be housed by 2040
	Both	175,700	More homes. 426,100 additional people able to be housed by 2040
Economics with 6 months reduction and 10% increase in investment	Annual GDP	$17.2B	$2.7B of additional private capital investment annually by 2040
	Jobs	145,600	Supported jobs provide over $8.5B of wages annually by 2040
	Taxation revenue	$4.0B	Federal and Ontario governments could receive $2.2B and $1.8B additional revenue annually by 2040

Figure 3 Impact of streamlining and increased investment within 20 years (CANCEA, 2020)

The *Canadian Infrastructure Report Card* determined that 10% to 20% of Canada's physical infrastructure is in poor condition. This is an obvious barrier to infrastructure development and economic growth. Additionally, infrastructure not in a state of good repair makes it less susceptible for mitigating and adapting to climate change. Regulatory frameworks that allow for adequate infrastructure development can support technology adoption congruent with Canada's environmental goals (Canada's Economic Strategy Tables, 2018; Rothenberg et al., 2016). BIM has the capacity to plan more innovative, cost-efficient buildings by enabling more integrated information and collaboration. BIM can allow for the construction and commissioning of buildings with lower environmental impacts, relating to energy use, greenhouse gas emissions, and the sustainable use of materials. Furthermore, BIM capabilities can be enhanced to include evaluation tools such as daylighting and solar studies, life cycle assessments, and management information for the building lifecycle. These features can be integrated to refine and modernize environmental assessment procedures involved in obtaining construction permits (IPCC, 2014).

Australia: BIM-enabled System Automation

In Australia, BIM is integrated to deliver code-checking tools which can be referred to during different stages of design. This allows for automatic communication of project details between relevant authorities, and automated compliance tests. This frees administrative resources, which can now address higher-risk and more complex approvals. Many Australian states are in the process of making the use of BIM mandatory for project approvals. Queensland, Australia strives to have universal use of BIM for all major infrastructure projects by 2023.

E-permitting Integration

Approximately 60 cities globally currently use ICT in some capacity for building control and permitting. Almost half of these platforms were implemented in co-ordination with extensive government regulatory reforms. Less than one sixth of ICT solutions were implemented without some sort of regulatory reform, establishing that regulatory reform and digitization go hand in hand (World Bank Group, 2018). The World Economic Forum identifies key strategies for leveraging technology advancements to promote global competitiveness. Among these are simplifying and harmonizing approvals to be performance based, differentiating approvals by risk, and setting clear timelines for approvals, culminating in digitizing development approvals (World Economic Forum, 2016).

Digitization undoubtedly improves efficiency, but IT solutions are inadequate if approvals processes are not effectively streamlined first.

Singapore: Reform First, Digitize After

In 2001 Singapore implemented CORENET, an online construction approvals platform. Similar to Canada, prior to CORENET, multiple applications had to be sent to different agencies, leading to lengthy timelines and redundant processes. Before the new e-permitting system could be launched, Singapore reformed the building approvals process. A task force of private- and public-sector stakeholders established a set of comprehensive performance standards using a risk-based approach, where low-risk projects have shorter approvals processes. Furthermore, qualified professionals were made to be heavily integrated in the assessment process during these reforms, decreasing requirements for regulatory approvals. This strategy was complimented by extensive liability systems to ensure accountability.

The CORENET system integrated e-submission and information sharing features. Certified professionals could easily submit relevant forms and applications online. Furthermore, electronic information-sharing allowed relevant public agencies to quickly share information and documentation, decreasing redundancy in the application process, and shortening the amount of time required to receive approvals. Building plans could be returned to applicants within two weeks of submission. Stringent confidentiality protocols and data encryption were necessary to ensure optimal discretion regarding applications. One year prior to CORENET being launched, an implementation committee was enacted to support adoption by private agencies. A task force was also established to provide industry practitioners with resources and skills to effectively utilize CORENET. After ensuring public education and regulation harmonization, paper-based submissions were prohibited, ensuring that all development approvals submissions were made over the e-platform. Singapore successfully integrated the CORENET system within three years (Tamer El-Diraby et al., 2009; World Bank Group, 2020).

Integrating ICT solutions greatly increases system efficiency, but additional steps must be taken to ensure holistic automation and integration. Internationally, the most successful jurisdictions rely on extensive regulatory reform and robust guidelines for data security and information exchange (World Bank Group, 2018). The One Ontario initiative will establish provincial guidelines for data exchange in the approvals process and drive the implementation of e-permitting systems which integrate innovations in GIS and BIM technologies. Before a digital system can be developed, the guiding brickwork must be laid. This task force is following the steps of global leaders, striving to mend Ontario's fragmented regulatory system by providing the foundation for a comprehensive and streamlined e-permitting system. The hope is that this initiative will be the first stride in a long journey to modernize and standardize the approval process across Ontario's municipalities, thereby expediting existing timelines, increasing efficiency, and promoting transparency of the current approvals system.

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