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Municipalities' strategies to implement universal accessibility measures: A scoping review

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Abstract
An accessible built environment is an important catalyst of participation. However, people living with disabilities face daily barriers to in their built environment. Many stakeholders are involved in the implementation of accessible built environment for all, such as municipalities. The implementation of such universal accessibility measures is therefore complex for municipal employees. Integration of such measures into regular activities requires individual (employees) and organizational (municipalities) change. Different implementation strategies are helpful to guide municipalities in the creation of tools and to facilitate the operationalization and implementation of the measures. The aim was to explore what are the implementation strategies used by municipalities to implement universal accessibility measures. To answer this question, (1) identified the different strategies used by municipalities in implementing universal accessibility measures, (2) explored the perceived influence of these strategies, and (3) identified facilitators and barriers to the use of the different strategies to implement universal accessibility measures. We conducted a scoping review following the PRISMA-SR guidelines. We analyzed the data according to the type of strategy and to the Consolidated Framework for Implementation Research (CFIR). Of 1328 articles identified by the search strategy, six studies

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met the inclusion criteria. The strategies were identified as dissemination, process, integration, or capacity-building strategy. Involvement of all stakeholders was the most frequently mentioned facilitator, while lack of awareness was the most reported barrier. The results show that there is no consensus on which implementation strategies are appropriate and effective to use in this context. Also, there are no measures of effectiveness of pre-post design of these strategies. This shows that implementation strategies in municipal context regarding universal accessibility are still in an exploratory phase. However, it is possible to make links with the different implementation domains of the CFIR. We also observed that the identification of facilitators and obstacles to implementation is important to identify needs and to better plan the different stages of implementation.

Keywords: knowledge mobilization, accessibility, universal design, public organizations, implementation strategies, disability

Résumé

Un environnement bâti accessible est un important catalyseur de participation. Cependant, les personnes handicapées sont confrontées à des obstacles quotidiens dans leur environnement bâti. De nombreux acteurs sont impliqués dans la mise en œuvre d'un environnement bâti accessible à tous, tel que les municipalités. La mise en œuvre de telles mesures d'accessibilité universelle est donc complexe pour les employés municipaux. L'intégration de telles mesures dans les activités régulières nécessite des changements individuels (employés) et organisationnels (municipalités). Différentes stratégies de mise en œuvre sont utiles pour guider les municipalités dans la création d'outils et pour faciliter l'opérationnalisation et la mise en œuvre des mesures.

L'objectif était d'explorer les stratégies de mise en œuvre utilisées par les municipalités pour mettre en œuvre des mesures d'accessibilité universelle. A cette fin, l'ont, (1) a identifié les différentes stratégies utilisées par les municipalités pour mettre en œuvre des mesures d'accessibilité universelle, (2) exploré l'influence perçue de ces stratégies et (3) identifié les facilitateurs et les obstacles à l'utilisation des différentes stratégies de mise en œuvre de l'accessibilité universelle des mesures d'accessibilité. Nous avons mené une étude de cadrage conformément aux lignes directrices PRISMA-SR.

Nous avons analysé les données selon le type de stratégie et selon le Consolidated Framework for Implementation Research (CFIR). Des 1 328 articles identifiés par la stratégie de recherche, six études répondaient aux critères d'inclusion. Les stratégies ont été identifiées comme étant une stratégie de diffusion, de processus, d'intégration ou de renforcement des capacités. La participation de toutes les parties prenantes était le facilitateur le plus fréquemment mentionné, tandis que le manque de sensibilisation était l'obstacle le plus signalé.

Les résultats montrent qu'il n'y a pas de consensus sur les stratégies de mise en œuvre appropriées et efficaces à utiliser dans ce contexte. De plus, il n'existe aucune mesure de l'efficacité de la conception pré-post design de ces stratégies. Cela montre que les stratégies de mise en œuvre dans le contexte municipal en matière d'accessibilité universelle sont encore en phase exploratoire. Il est cependant possible de faire des liens avec les différents domaines de mise en œuvre du CFIR. Nous avons également observé que l'identification des facilitateurs et des obstacles à la mise en œuvre est importante pour identifier les besoins et mieux planifier les différentes étapes de mise en œuvre.

Mots-clés : mobilisation des connaissances, accessibilité, conception et design universelle, organismes publics, stratégies de mise en œuvre, handicap

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Introduction

An accessible built environment is an important catalyst of social and economic participation (Eckhardt et al. 2020). Accessibility to infrastructure enables citizens to meet their needs for health, employability, education, recreation, social inclusion, or participation. (Eckhardt et al. 2020; Eisenberg et al. 2020; Gamache et al. 2020). However, people living with physical, sensory, cognitive or any other disabilities face daily barriers in their built environment, limiting their mobility and hindering their opportunities for social participation and fulfillment (Fougeyrollas 2015; Steinfeld and Maisel 2012). Accessibility has an impact on several spheres of daily life, as it makes it easier for people to, for example, take transportation, go to work, do their daily activities, participate in leisure activities, or grocery shopping (Steinfeld and Maisel 2012). Universal accessibility aims to create accessible environment allowing all individuals, including those with disabilities, to carry out their activities independently, to provide an equitable accessibility to buildings, services, resources, and activities (Folcher 2012; Fougeyrollas 2015; Larkin et al. 2015). The *United Nations Convention on the Rights of Persons with Disabilities* (UN-CRPD) (United Nations 2006) puts forward the importance of improving the life of people with disabilities through universal accessibility and promoting significant change in the social inclusion of these people (Groce 2018; Steinert et al. 2016; Szmukler 2015; United Nations 2006).

Many stakeholders are involved in the implementation of accessible built environment for all, such as engineers, urban planners, designers of buildings, places, and districts (United Nations 2014), governments, municipalities, community-based organizations, or researchers. More precisely, municipalities in countries who have ratified the UN-CRPD are required by law to implement measures to improve universal accessibility of the built environment (Boucher 2018; Imrie 2000). In this regard, municipal employees have a key role in implementing universal accessibility measures, including universal design of the built physical environment. As the world's population increasingly lives in urban centres—it is estimated that more than two-thirds will do so by 2050 (Ritchie and Roser 2018; United Nations 2018)—municipalities and their employees have thus an increasingly important role to plan and create universally accessible environments, by putting in place various universal accessibility measures, such as the installation of audible signals at traffic lights, or of access ramps for businesses. The implementation of such universal accessibility measures is however a complex initiative for municipalities. Integration of such measures into regular activities requires individual (employees) and organizational (municipalities) behavior change, a high level of awareness, sufficient resources, good knowledge, and a positive attitude of the leaders towards the issue (Phillips et al. 2015). Many environmental and individual factors can thus influence the implementation process, calling for a careful choice of the implementation strategies to adopt. However, little is known about implementation strategies municipalities have adopted to facilitate the application of universal accessibility measures, or what the facilitators and barriers they face in the implementation of such practices. There is therefore a need to review the literature on what has been done in relation to the different implementation strategies and their impact.

Implementation strategies are methods used to improve the application of the evidence in practice (Proctor et al. 2013) and they are effective when there is use of guidelines or evidence into daily practices (Eccles et al. 2009). Implementation scientists suggest that implementation strategies should be tailored to a specific situation by taking into account environmental and individual factors, and be carefully designed to allow the actualization of innovation, such as universal accessibility measures (Atkins et al. 2017; Birken et al. 2017; Damschroder et al. 2009). The specific situation in implementation science can be reflected in various theories and frameworks, proposing determinants of implementation (e.g. knowledge, behaviors, skills, beliefs, influences) (Nilsen and Bernhardsson 2019). Knowing what determinants influence the implementation of given measures can help guide decision about what strategies to adopt based on how well they address the key determinants that can facilitate the implementation of universal accessibility measures (Aarons et al. 2011). Implementation strategies can target different stages of the implementation process and can be grouped as dissemination, process, integration, or capacity-building strategies (Aregbesola et al. 2021). Dissemination strategies aim to improve awareness, knowledge and intentions to use the evidence (Leeman et al. 2017). There are also process strategies, activities or processes related to improvement in planning, selection and integration of evidences into practice (Aarons et al. 2011). Integration strategies are actions to address factors influencing the optimal integration of specific evidence into practice, such as networking, public representation, or any interactive strategy to strengthen knowledge integration (Leeman et al. 2017). Finally, capacity building strategies aim to improve the capacity of individuals to execute implementation strategies, such as training, technical assistance, tools or opportunities or networking (Leeman et al. 2017). Implementation strategies are fundamental to the optimization of the implementation and use of universal accessibility measures in municipalities. Thus, a synthesis of the different strategies for the implementation of best practices in universal accessibility within a municipality is

helpful to guide municipalities in the creation of tools and to facilitate the operationalization and implementation of the measures in their action plan.

In order to fill the knowledge gap in the literature related to the implementation strategies municipalities have adopted to facilitate the application of universal accessibility measures, or what facilitators and barriers they face in implementing such practices, the aim of this, the goal of this scoping review was to explore what are the implementation strategies used by municipalities to implement universal accessibility measures. To answer this question, we aimed to (1) identify the different strategies used by municipalities in implementing universal accessibility measures, (2) explore the perceived influence of these strategies, and (3) identify facilitators and barriers to the use of the different strategies to implement universal accessibility measures.

Methods

We conducted a scoping review of the implementation strategies used by municipalities to improve universal accessibility measures following the Joanna Briggs Institute (JBI) guidelines (Peters et al. 2020). We chose scoping review synthesis method because it allowed us to explore a broad and emergent area of study (Arksey and O'Malley 2005; Tricco et al. 2016). This type of review also allowed us to examine the extent, range, and nature of this research subject and to clarify complex concept (Grant and Booth 2009; Levac et al. 2010). This scoping review was realized in five stages: (1) identify the research question, (2) identify relevant studies, (3) choose studies, (4) chart the data and (5) collect and report the results (Arksey and O'Malley 2005). We used the Preferred Reporting Items for Systematic Reviews - extension for scoping reviews (PRISMA-SR) (Tricco et al., 2018) to report our work.

Identifying the research question

The identification of the question is based on gaps in the literature specifically related to implementation strategies in municipalities, the effectiveness of strategies in implementing universal accessibility measures and scientific knowledge needs of organizations. This study focuses on municipalities because unlike federal or provincial governments and community organizations, they are directly involved in the implementation of universal accessibility measures, as their duty and legal responsibility is to create laws and policies consistent with universal accessibility. In addition, municipalities have a direct and immediate impact on the creation of built environment, and therefore on the daily lives of citizens.

Identifying relevant studies

The first author (MC) conducted the initial research, with the help of two librarians specialized in literature reviews and rehabilitation science. We searched six databases: Medline, CINAHL, Urban studies Abstract, ABI Inform, Social Sciences full text and Web of Science. The search strategy included free and controlled vocabulary of two concepts: (1) universal accessibility and (2) local governments. Searches had to be in French or English and were completed in August 2021 and limited to 2006–2021. The year 2006 was targeted since it was the year the CRPD was adopted, so practices are more likely to have changed dramatically since then. Search strategy was detailed in the protocol of this scoping review (Corcuff et al. 2022).

Selecting studies

The studies were included if they met the following criteria were (1) the article was published in peer-reviewed journals, (2) presented empirical work, (3) addressed the implementation strategies used by municipalities to implement universal accessibility measures and (4) was written in English or in French. The exclusion criteria were: (1) they were exclusively evaluating the universal accessibility measures (and not the implementation strategy), (2) if they discussed technology and media accessibility or (3) were published before 2006. Two co-authors (MC and CMR) individually screened results by examining (1) the titles and abstracts and (2) full-text articles, to decide if they met the inclusion criteria. Conflicts were resolved through discussion between MC and CMR, and no conflict needed for a third reviewer.

Data extraction

The data for all articles were independently extracted by the first two authors (MC and ARR) in an Excel table based on the one used in the implementation review study of Aregbesola et al. (2020). In this table, descriptive data about the article (first author, year of publication, country, study design, study period, study objective and area of study) and intervention data were extracted. In the intervention data, the number and type of implementation strategies was indicated. We also classified the strategy whether it was a dissemination, integration, process, or capacity building implementation strategy, as differentiated in the introduction. To ensure rigorous extraction, MC and ARR each completed an extraction table, which were compared and discussed in case of conflict.

Data analysis

In the published protocol of this scoping review (Corcuff et al. 2022), we indicated that the different strategies would be associated with the domains of Michie's Theoretical Domain Framework (Michie 2005), which focus on individual determinants of behaviour change. However, during the analysis, Michie's framework revealed to be less adequate, given the scarcity of domains related to the organization itself. As strategies were more organizational than initially expected, we deductively analysed the results using a mapping based on the Consolidated Framework for Implementation Research (CFIR) (Damschroder et al. 2009). This framework is a meta-model, based on 19 knowledge transfer theories and identifies contextual determinants, barriers, and facilitators to the implementation of an innovation (Damschroder et al. 2009). The CFIR is a framework that is used when examining complex contexts and organizations (Nilsen and Bernhardsson 2019). A mapping between the CFIR domains and the influence of strategies reported in the articles was conducted with a conceptual deductive analysis. The first two authors (MC and ARR) coded the different elements separately and agreed when there was a conflict.

Results

A total of 1328 articles were identified through the search process and 236 duplicates were removed. The titles and abstracts of the remaining 1132 articles were screened according to the inclusion criteria; 1059 articles were excluded, and 73 articles were subjected to a full-text review of their eligibility according to the inclusion criteria. Of these articles, 67 were excluded because they focused on the evaluation of accessibility measures (n=30), were not based on an empirical approach (n=9), were relatives to another type of organization (n=5), were not peer-reviewed (n=9), were not in French or English (n=13) or were not available (n=1). The remaining six articles were included in the final review. Figure 1 illustrates the number of articles at each stage of the search.

Table 1 reports the characteristics of each study by authors, year of publication, country of implementation, type of study, and discipline of the journal in which the study was published.

To meet our objectives, the results are presented in three sections: 1) description of implementation strategies, 2) perceived influence of the strategies, and 3) facilitators and barriers.

Description of implementation strategies

Dissemination strategies. Dissemination strategies are used to improve awareness, knowledge and intentions to use the evidence (Leeman et al. 2017). In the articles included in this scoping review, authors reported using a range of dissemination strategies like workshops (Aalbers 2016), written reports (Aalbers 2016; Sugawara et al. 2021), working group meetings (Aalbers 2016), scientific publications (Labbe et al. 2020) and awareness initiatives (Aalbers 2016; Lundälv et al. 2020). For example, Labbe et al. (2020) described strategies to improve knowledge of accessibility issues experienced by people with disabilities among municipal employees with videos, photo exhibit and an interactive game. Also, the use of awareness initiatives was reported in two studies (Aalbers 2016; Lundälv et al.,2021). First, a wheelchair awareness campaign was reported in Aalbers (2016), where the mayor and city managers were invited to travel around the city in wheelchairs with specific tasks to complete. Also, Lundälv et al. (2021) reported the effects of conducting an awareness-raising exercise, called *Disability Awareness Exercise* (DAE). This exercise consisted of a 30-minute presentation on disability, universal design, and the human rights perspective by instructors employed by the municipality, followed by a 90-minute disability simulation focusing on barriers and thinking of solutions. Aalbers (2016) also reported workshops and conversations that were subsequently reported in a written report as a dissemination strategy.

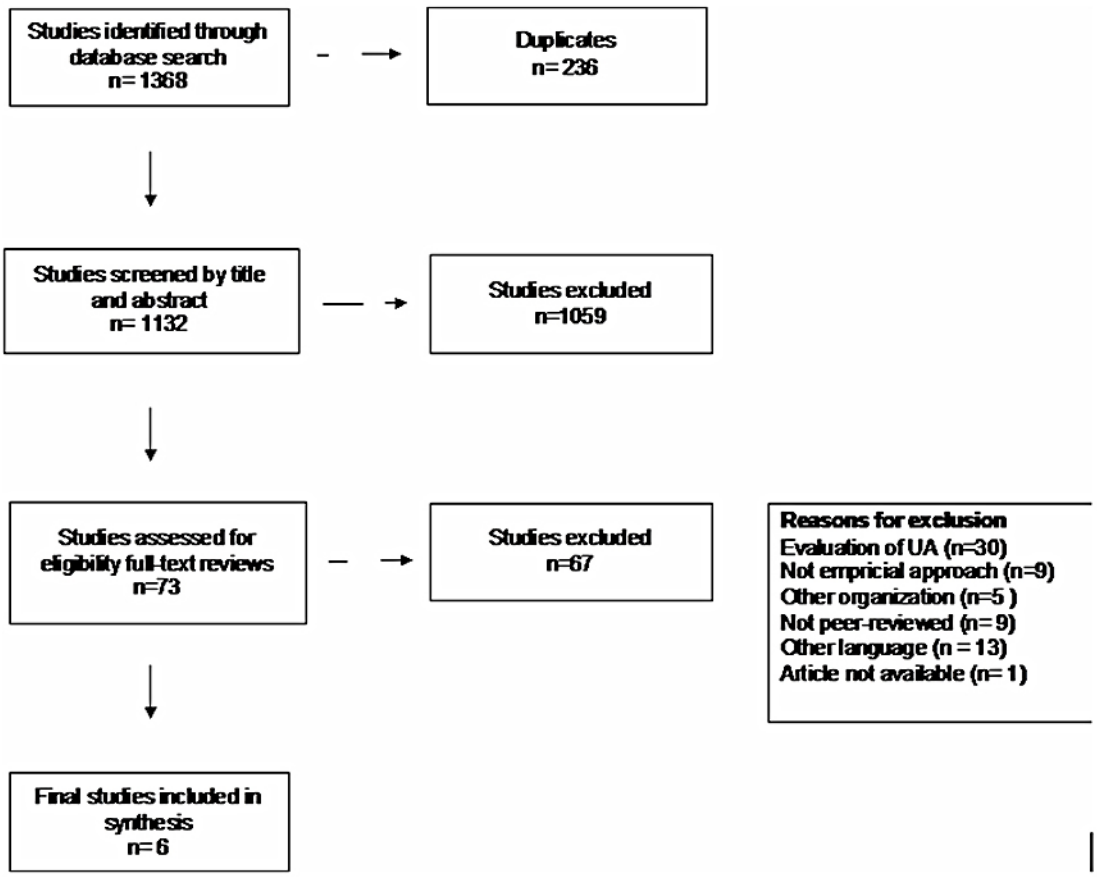

Figure 1
PRISMA flowchart of the articles included in the review

Table 1
Descriptive data of included studies

Authors	Year	Country	Study type	Discipline
Aalbers	2016	South Africa	Case Study	Public health, health technology
Jensen	2016	Norway	Case Study	Public health, politics
Abd Samad, Said & Abdul Rahim	2018	Malaysia	Case Study, narrative research	Architecture, health technology
Labbé, Mahmood, Miller & Mortenson	2020	Canada	Community-based participatory research, mixed-methods study	Environmental and public health
Lundälv, Ehrlington & Johansen	2020	Sweden	Mixed-methods study, exploratory	Architecture
Sugawara, Nagano, Beppu & Inagaki	2021	Japan	Qualitative and descriptive research	Urban planning

Process strategies. Process strategies are activities or processes related to improve planning by selecting and integrating evidences into practice (Aarons et al. 2011). All authors reported using process strategies to implement universal accessibility measures Jensen (2016) and Aalbers (2016) talked about funding. For example, Aalbers (2016) involved engaging residents of the municipality in a social fundraising campaign to raise awareness of accessibility issues experienced by people with disabilities. The municipality also supported local organizations in a fundraising program and awareness initiatives. Four articles reported the development of policies and the involvement of different stakeholders as process strategies (Aalbers 2016; Abd Samad et al. 2018; Lundälv et al. 2021; Sugawara et al. 2021). Indeed, Aalbers (2016) developed an integrated implementation plan, in which performance indicators and budget targets were included. Abd Samad et al. (2018) reported on the formulation of strategies and planning in consultation with several actors involved in the issue of accessibility (authorities, policy makers, researchers, service providers and users). Teams of experts have been formed, and people have been dedicated to monitor accessibility and carry out audits. Legislation documents and practical guides have been distributed. Consultations with an accessibility expert, the creation of a strategic plan and a checklist of things to do to improve universal accessibility have been made available to municipal employees. Sugawara et al. (2021) focused on the creation of a basic plan to remove barriers. To do this, committees were formed to discuss current barriers in the built environment, involving the public in the discussions, as well as accessibility experts, consultants, and municipal managers. The projects could then be presented to the municipality, which was responsible for coordinating with private and public sector actors to complete the projects. Finally, Labbe et al. (2020), Lundälv et al. (2020) and Sugawara et al. (2021) reported the use of knowledge mobilization or information sessions to inform about universal accessibility principles or information sessions and disseminate evidence.

Integration strategies. Integration strategies are actions to address factors influencing the optimal integration of specific evidence into practice (Leeman et al. 2017). Authors reported integration strategies such as networking (Aalbers 2016; Labbé et al. 2020), interactive knowledge mobilization strategies and complementary media (Aalbers 2016; Jensen 2016; Labbé et al. 2020; Lundälv et al. 2020), audits and feedback (Labbé et al. 2020; Lundälv et al. 2020), representation of people with disabilities (Aalbers 2016; Lundälv et al. 2020) or self-evaluation (Sugawara et al. 2021). Aalbers (2016) used the creation of an exchange and networking platform to engage civil society in conversations between citizens, the municipality, and experts in disability, built environment and universal design, to ensure representation of people with disabilities, and to encourage the creation of initiatives. Labbe et al. (2020) used different interactive knowledge mobilization strategies and complementary media to ensure the integration of the universal accessibility concept. First, a series of three videos showing different and complementary accessibility issues experienced by individuals were presented to municipal employees and the citizen advisory committee. The second strategy described was a photo exhibit of barriers to accessibility, based on a photovoice activity with people with disabilities. The third strategy used was the creation of an interactive game in collaboration with members of the advisory committee, based on the same photovoice, audits and a literature review (Labbe et al. 2020).

Capacity-building strategies. Finally, capacity-building strategies target to improve the capacity of individuals to execute implementation strategies, such as training, technical assistance, tools or opportunities of networking (Leeman et al. 2017). Authors reported, for example, in-depth training (Jensen 2016), assessment of new knowledge (Labbe et al. 2020; Lundälv et al. 2020), and reports on the intention to change practices (Labbe et al. 2020). For example, Jensen (2016) did in-depth training by inviting 18 municipalities to identify a walking location that they would make accessible. Multi-disciplinary groups were formed in each municipality of about ten people with expertise in public health, transportation, urban planning, sports and recreation, universal design, and advocacy. Each municipality was encouraged to identify projects and goals to make the Parkway more accessible. Aalbers (2016) used a capacity-building strategy with knowledge sharing and capacity-building through neighborhood councils. Senior management was invited to participate in sessions to deepen the common understanding of accessibility principles and implementation, as well as in working group meetings to discuss the changes required. Finally, Labbe et al. (2020) and Lundälv et al. (2020) used techniques, such as journal, observations or questionnaire to assess new knowledge and intentions to change practices after the use of the knowledge mobilization strategies.

Perceived influence of strategies

Some of the authors explored qualitative perceptions of the influence of the implementation strategies used on behavior or attitudes changes (Jensen 2016; Labbe et al. 2020; Lundälv et al. 2020). Labbe et al. (2020) evaluated their strategies based on various impact indicators such as reach, usefulness, partnerships, and practice changes, using quantitative and qualitative methods. The triangulation of journal, observation and questionnaire data suggested that the strategies influence awareness of various urban stakeholders and provided information and guidance to urban planning practices related to accessibility. This also impacted knowledge, abilities, engagement of municipal employees in the process and beliefs. Jensen (2016) did not specify the method used but reported a better understanding of employees working together towards the same common idea, formal acceptance of the project by the municipality's leaders, better overall commitment to the process, and better ability to implement universal accessibility measures. Lundälv et al. (2021) used interviews and a questionnaire to assess the influence of the disability awareness exercises method. Participants generally reported good satisfaction with the content of the exercises and a marked improvement in their knowledge of universal accessibility and the field of disability. They perceived direct changes, such as increased awareness, changes in practice and attitudes in their professional lives, more inclusive and adapted language, and better shared responsibility within the organization.

Facilitators and barriers to implementation strategies

Facilitators and barriers to the various implementation strategies used were sometime identified or mentioned in the studies, although no systematic investigation of the determinants was performed. Some elements emerged both as facilitators and obstacles, depending on the context.

Facilitators. Several facilitators for the implementation of universal accessibility measures have been reported by the studies. Five studies (Aalbers 2016; Jensen 2016; Labbe et al. 2020; Lundälv et al. 2020; Sugawara et al. 2021) reported that the involvement of all stakeholders in the implementation of universal accessibility principles is an important facilitator to the process. Involving decision-makers, municipal stakeholders, or citizens help to better understand each other's perspective and to create an interactive exchange allowing for a better adoption of universal accessibility measures. Also, the involvement of the governance level of the municipalities and of the employees themselves, facilitates the integration and implementation of new measures (Jensen 2016; Sugawara et al. 2021). Labbe et al. (2020) and Sugawara et al. (2021) have noted that multidisciplinary and sharing expertise and resources between disciplines was helpful to the implementation process. In addition, the creation of new policies by government organizations as well as the social model of disability (considering that the individual's disability is caused by the interaction between his or her individual abilities and the environment) is raised as potential facilitators to a more effective implementation process, especially in terms of adoption and awareness of stakeholders (Abd Samad et al. 2018; Sugawara et al. 2021). Labbe et al. (2020) and Lundälv et al. (2020) also mentioned the relevance to use simultaneously several strategies such as the involvement of stakeholders with the creation of new policies joined together. Table 2 shows the different implementation facilitators reported by the authors.

*Barriers.*Barriers and challenges were reported in most studies (Aalbers 2016; Abd Samad et al. 2018; Jensen 2016; Lundälv et al. 2020; Sugawara et al. 2021). First, half of the studies (Aalbers 2016; Abd Samra 2018; Sugawara 2021) pointed the lack of awareness about the reality of people with disabilities among municipal authorities and employees involved in the implementation process. Aalbers (2016), Jensen (2016) and Sugawara (2021) also outlined various external factors, such as the funding and subsidies, the difficult negotiations with the private sector in the execution of contracts or maintaining communication with advocacy committees, as important barriers to the implementation process for municipalities. On the other hand, internal context barriers were raised, such as the internal management, the development of the employees' capabilities or the motivation gaps among the employees. The important gap between legislations about universal accessibility measures and the actual implementation of universal accessibility measures (Abd Samad et al. 2018; Sugawara et al. 2021) was a major barrier in the absence of knowledge mobilization. In addition, resistance to change and the fact that the change can be time-consuming for these organizations (Aalbers 2016; Lundälv et al. 2020) were stated as barriers to implement best practices in universal accessibility. Table 3 reports the barriers with the number and names of authors who reported it.

Table 2
Facilitators to implementation

Facilitators	Number of studies	Authors
Involvement of all stakeholders	5	Aalbers (2016) ; Jensen (2016); Labbe et al. (2020); Lundälv et al. (2020); Sugawara et al. (2021)
Involvement of the governance level as well as municipal employees	4	Jensen (2016); Labbe et al. (2020); Lundälv et al. (2020); Sugawara et al. (2021)
Multidisciplinary	3	Jensen (2016); Labbe et al. (2020); Sugawara et al. (2021)
New Laws and Social Model of Disability	2	Abd Samad et al. (2018) ; Sugawara et al. (2021)
Simultaneous use of several strategies	2	Labbe et al. (2020); Lundälv et al. (2020)

Table 3
Barriers to implementation

Barriers	Number of studies	Authors
Lack of awareness	3	Aalbers (2016) ; Abd Samad et al. (2018) ; Sugawara et al. (2021)
External factors (e.g. funding, interactions with private sector, communications with advocacy committees)	3	Aalbers (2016) ; Jensen (2016) ; Sugawara et al. (2021)
Internal factors (e.g. organizational management, capabilities, motivation)	2	Aalbers (2016); Sugawara et al. (2021)
Gap between legislation and implementation	2	Abd Samad et al. (2018) ; Sugawara et al. (2021)
Time consuming and resistance to change	2	Aalbers (2016) ; Lundälv et al. (2020)

Discussion

This scoping review aimed to explore the range of implementation strategies used by municipalities to implement universal accessibility measures. We identified nine different implementation strategies under four categories used in a municipal context addressing implementation of universal accessibility measures. The results show that there is no consensus on which implementation strategies are appropriate and effective to use in this context. The several different strategies demonstrate the absence of standards or protocols. Indeed, Aalbers (2016) reports that there is a difference between making a change and knowing how to make that change, and that the lack of a standard makes implementation even more complex. This also highlights the importance of an effective knowledge mobilization. Although, identifying facilitators and barriers allows us to identify needs and guide us on how to support the implementation of universal accessibility measures in municipal contexts. A better knowledge mobilization as well as the identification of facilitators and barriers specific to the context of universal accessibility within municipalities can

already further guide the implementation strategies to be used.

Although three studies report evaluations that detect the influence of implementation strategies on changes in universal accessibility practices, there are no measures of effectiveness of pre-post design of these strategies in a given, well characterized context. This shows that implementation strategies in municipal context regarding universal accessibility are still in an exploratory phase, but that there is a need to document these strategies to evaluate their effectiveness and impact on the life of individual with disability. This could be explained by the fact that there are different levels of strategies, from organizational to individual change strategies, i.e., we are talking as much about policy creation in organizations or governments as about individual mobilization and awareness. This more systemic approach, which involves changes in paradigms, attitudes, or behaviours, may therefore be more complex to measure than a change in knowledge, for example. In addition, the studies have reported little on context in which the study was conducted on the implementation of universal accessibility measures and on development and implementation of strategies. The importance of the context in the implementation reported by Nilsen and Bernhardsson (2019) leads us to question the influence that resources, knowledge, organization, or environmental issues could have on the strategies and the implementation of universal accessibility measures. In order to estimate the perceived influence of the implementation strategies reported in this review, we conducted a mapping exercise between the identified implementation strategies and the CFIR framework (Damschroder et al. 2009) domains to which they relate, as mentioned in the data analysis section. Table 4 shows that all the reported implementation strategies combined influence all CFIR domains.

Table 4
Relation between implementation strategies and CFIR domains

CFIR domains / Implementation strategies	Intervention characteristics	Outer setting	Inner Setting	Characteristics of individuals	Process
Development of integrated plans or politics (Aalbers, 2016; Abd Samad et al., 2018; Sugawara et al., 2021)	X	X			X
Networking platform (Aalbers, 2016; Labbe et al., 2020)	X		X	X	
Workshops (Aalbers, 2016; Jensen, 2016; Labbe et al., 2020; Lundälv et al., 2020; Sugawara et al., 2021)			X	X	
Identify projects to improve accessibility (Jensen, 2016)	X				X
Guidelines, checklists (Labbe et al., 2020; Lundälv et al., 2020; Sugawara et al., 2021)	X				X
Involving stakeholders / Consultation of experts (Aalbers, 2016; Abd Samad et al., 2018; Labbe et al., 2020; Lundälv et al., 2020; Sugawara et al., 2021)		X	X		
Awareness initiatives					
Fundraising (Aalbers, 2016; Jensen, 2016)				X	X
Awareness day / simulation / role play (Aalbers, 2016; Lundälv et al., 2020)				X	
Knowledge sharing, capacity building (city councils) (Aalbers, 2016; Labbe et al., 2020; Lundälv et al., 2020)				X	
Visual material (Video series, photo exhibit, interactive games, presentations, etc.) (Aalbers, 2016; Labbe et al., 2020; Lundälv et al., 2020)	X	X		X	

As the different CFIR domains are derived from several CFIR constructs, the implementation strategies are interrelated with these constructs (Damschroder et al. 2015). First, the development of integrated plans and policies influences the expected cost of implementing universal accessibility measures (intervention characteristics), external policies (external framework), and measure planning (process) due to associated budgets, implementation planning, and planned measures. Networking platforms impacted adaptability (intervention characteristics) based on context, networks, and communication (internal framework), as well as the individual's knowledge, beliefs, and stage of change (individual characteristics). In fact, it seems that networking may affect behaviors and the acceptability of universal accessibility measures to individuals. The workshops influenced networks (inner setting), as well as knowledge, beliefs, and individual stage of change (individual characteristics). These workshops can effectively influence behavior change and getting individuals to influence each other. The identification of accessibility improvement projects seems to facilitate the adaptation of strategies to the context (characteristics of the intervention) and the planning and

engagement phases of the process. Guidelines and checklists contribute to the same determinants of implementation, except for the commitment phase, which is more in line with the execution phase of the process, as these guidelines play a role in planning the implementation process. Stakeholders' involvement contributes to improving the climate and networks for implementation (internal setting) and is influenced by peer pressure (external setting), as expert consultation provides insight into patient needs and resources (external setting). Outreach initiatives can also improve knowledge and beliefs as well as the individual stage of change (individual characteristics) and the commitment phase of the process. Knowledge sharing and capacity building also influence the individual's identification with their organization (individual characteristics). Finally, visual materials have been shown to improve knowledge and beliefs (individual characteristics), strength and quality of evidence (intervention characteristics), and understanding of the individual's needs and resources (external setting).

Finally, most studies (Aalbers 2016; Jensen 2016; Labbe et al. 2020; Lundälv et al. 2020; Sugawara et al. 2021) included in this scoping review reported the importance of involving diverse groups of stakeholders in such an implementation process. Labbe et al. (2020) and Aalbers (2016) also put forward the relevance of involving people with disabilities themselves among these actors, since they are among the people most benefiting from the improvement in accessibility. This reflects what is mentioned in the literature. According to Lid (2014), universal accessibility is a cross-sectoral field that concerns the environment in all its levels. This also refers to the fact that universal accessibility has an impact on environmental factors at the micro (e.g. home, work), meso (i.e. the relationship between the microsystems that will enable him/her to participate socially and economically) or macro (i.e. societal values and norms) levels (Fougeyrollas 1998). Thus, the involvement of all stakeholders, on all levels, is indispensable and promotes the implementation and development of effective strategies (i.e., municipalities, policy makers, people with disabilities), because they are at the heart of the solution, they are directly concerned by the changes and they are bringing significant benefits to the process of knowledge production (Phillipson et al. 2012). According to participatory research approaches like co-creation methods, people with disabilities become experts in their own experience because of their circumstances (Sanders and Stappers 2008). It is therefore essential to consider them in the development of universal accessibility measures and implementation strategies for these measures. Disability studies are also focusing more on participatory research or co-creation methodologies to allow for better adherence and acceptability to change, a more efficient and effective implementation, as well as a real answer to the needs of individuals (Leask et al. 2019; Steen and de Koning 2011).

Strengths and limitations of the study

This scoping review has several strengths. Indeed, the number of databases consulted and the consultation with experienced librarians to build the search strategy demonstrates the rigor of the approach to collect the scientific literature on the subject. Also, the double extraction and double coding by two authors reinforces this rigor. In addition, the team was composed of researchers with expertise in accessibility as well as researchers with expertise in implementation, which allowed for a cross-sectoral perspective on the analysis of the results and their interpretation.

Our scoping review also has various limitations. First, the studies identified in the literature had a relatively low level of evidence (i.e. they are either site-specific case studies, experts opinions reports, descriptive or observational qualitative studies). Second, the fact that we limited the results to English and French, due to our lack of knowledge of other languages, meant that we probably eliminate untranslated studies that discussed implementation strategies of universal accessibility measures in municipal contexts, but in a more local level, and therefore in the language of the country. Finally, we found that it is common to find information on universal accessibility measures in action plans or local policies, but that it is much rarer to find this information in scientific articles.

Conclusion

There are few scientific articles that describe strategies for implementing universal accessibility measures in a municipal context, and even fewer that evaluate the effectiveness of these strategies. Also, there is no common terminology among the authors to name the different strategies. It is therefore difficult and complex to bring the different strategies together, to compare them and find a common meaning. The fact that there is no clear boundary or common terminology between the different terms related to universal accessibility (e.g. universal design, inclusive design, accessibility, barrier-free design) (Persson et al. 2014) can complicate the implementation of strategies. The conclusion

of this scientific literature review approach showed it is possible to make links between the different implementation strategies reported and the determinants of a theoretical implementation framework by using the different domains of the CFIR. We also observed that the identification of facilitators and obstacles to implementation is important to identify needs and to better plan the different stages of implementation. This makes it possible to adjust the strategies according to the context, contributing to the improvement of participation of all citizens.

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