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# Leveraging Smart and Sustainable Development via International Events: Insights from Bento Gonçalves Knowledge Cities World Summit

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**Abstract:** During the last couple of decades, making cities smarter and more sustainable has become an important urban agenda. In this perspective, knowledge-based development is seen as a strategic approach for cities seeking to thrive through innovation and resilience. Accomplishing a knowledge-based development agenda is, however, challenging, and cities need support mechanisms to effectively develop and then incorporate such agendas into their decision-making processes. This study investigates the role of international events as one of these support mechanisms for the development and implementation of local knowledge-based development agendas. The study aims to address how international events contribute to the local knowledge-based development efforts. This study takes the Knowledge Cities World Summit (KCWS) series as the exemplar international event, and the Brazilian city of Bento Gonçalves as the case study city. The methodological approach of the study consists of semi-structured interview-based qualitative analysis and case study investigations. The findings of the study revealed the following: (a) international events can be fundamental drivers of local knowledge-based agendas; (b) these events contribute to host cities' development, especially at an institutional level, by generating outcomes such as engagement in cooperation networks and leveraging local actors' influence on the development process; and (c) KCWS was instrumental in placing the local university as a protagonist of the knowledge-based development movement of Bento Gonçalves. The study reported in this paper provides invaluable insights for cities seeking to use international knowledge-based development events for smart and sustainable city formation.

**Keywords:** knowledge-based development; knowledge-based urban development; smart and sustainable city; sustainable urban development; local development; urban development; knowledge cities world summit; international events; Bento Gonçalves; Brazil

## 1. Introduction

During the last decades, global economic, political, and environmental dynamics territorialized at the local level are changing the urban context and creating unprecedented challenges for cities [1,2]. Increased competition for investment capital, socioeconomic disparities, digital and knowledge divides, pandemics, escalating natural disasters, and other climate change effects are some of these global-scale issues currently facing cities [3–5].

Urbanization's extraordinary growth of the last decades, which will continue in the upcoming ones, especially in emerging economies [6,7], has turned global sustainability

into an increasingly local agenda, and cities into an arena where the battle for sustainable development takes place [1,8–10]. The inclusion of a goal exclusively aimed at cities (SDG #11—Sustainable Cities and Communities) in the United Nations 2030 Agenda for Sustainable Development [11] is representative of how urban sustainability is now critical for the global development strategy [8].

For urban planners, policymakers, and city managers, urban development in this context involves challenges such as attracting and allocating resources for infrastructure implementation, expansion, and the management of services. Most importantly, it also involves the support of an institutional structure that converses with the different agents of the development process while ensuring adequate and effective governance of the city [7]. Moreover, the COVID-19 pandemic has highlighted the importance and urgency of evidence-based urban planning to provide efficient and effective responses to cities during crisis episodes such as this [12].

These are neither quick nor simple endeavors for any city, and they may be even more challenging for cities in developing nations, where most future urban growth is expected to occur [6]. For these cities, the challenges of fast-paced urbanization and sustainable development are even greater, as they are often faced with limited financial resources and small institutional capacity for urban planning and enforcement [7,13–16]. Furthermore, different studies have indicated that medium- and small-sized cities in developing countries may face even more challenges to achieve sustainable urban development [3,8,13,17].

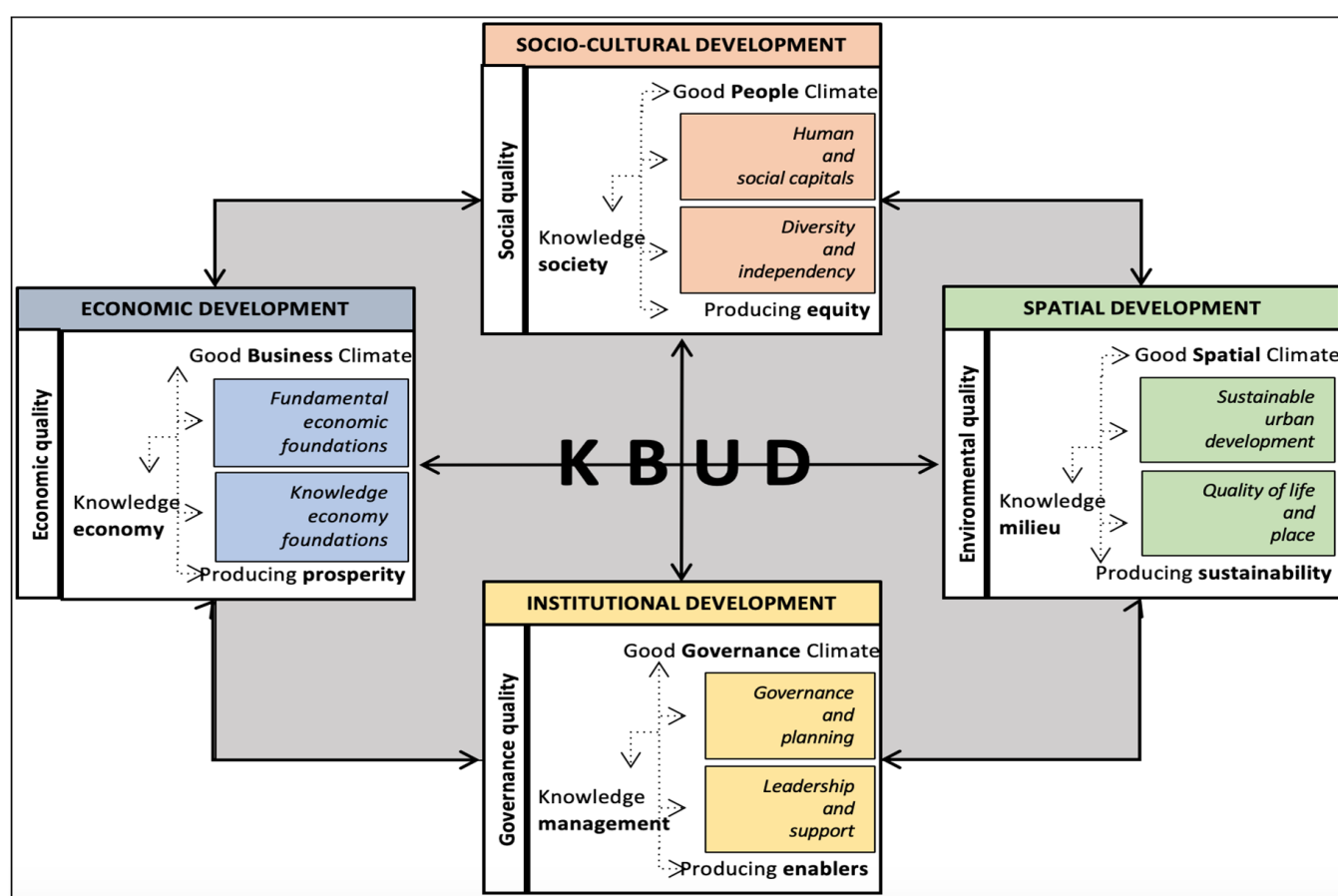
Amidst these difficulties, new smart technologies, especially in the field of information and communication technology (ICT), have been regarded as the main instruments for solving complex urban problems, making the “smart city” emerge as the urban model to be achieved in the 21st century [2,18]. Initially, on a practical level, the smart city approach was strongly associated with applying data science and smart technology in the urban context [19]. Recently, this approach has been updated to the “smart and sustainable city” model, as it has become progressively clear that technology alone is not the solution to all cities’ problems [2,20]. Instead, to be truly smart and sustainable, cities need a holistic approach that uses the opportunities provided by technology applications as a means of promoting all areas of urban development—economic, social, environmental, and institutional [2,8,20].

### *1.1. Knowledge-Based Development of Smart and Sustainable Cities*

In the last two decades, knowledge-based development of cities or knowledge-based urban development (KBUD) has been increasingly applied as a strategic approach for the promotion of smart and sustainable cities [21–24]. Conceived in the 1990s [25], over the years, the KBUD framework has undergone significant updates [23], becoming consolidated as a prevalent policy for cities and regions seeking to thrive through the paths of innovation and sustainability.

KBUD has become increasingly popular as a planning and development approach for cities and regions interested in transforming knowledge resources into local smart and sustainable development [25–28]. By encouraging the attraction, development, and retention of intellectual and human capital, and by fostering innovation and knowledge dynamics, KBUD leverages urban transformation [21], advancing innovative capacities [29], diversifying the economic base [24], upgrading infrastructures [30], and improving quality of life [31]. Furthermore, KBUD can operate as a powerful, multidimensional, and integrated platform that facilitates the application of smart solutions at a practical level, without losing sight of all of the dimensions of sustainability [22].

In order to do that, KBUD’s conceptual framework (Figure 1) draws upon a multidisciplinary and balanced perspective that considers urban development through four main elements, or policy domains, namely economic, sociocultural, spatial (or environmental), and institutional [23,28,29,32].



**Figure 1.** Conceptual framework of KBUD, derived from [29].

The economic development perspective places knowledge as a strategic resource and aims to achieve development by leveraging local endogenous knowledge assets and local research and development (R&D) and innovation processes [26,29].

The socio-cultural development perspective considers that citizens' skills and knowledge are critical for the community's development. This perspective advocates that socio-cultural development can only be achieved through social equity, diversity, independence, and strong human and social capitals [28,29].

The enviro-urban (spatial) development perspective values sustainable and environmentally sound alternatives for the spatial improvement of cities, emphasizing the importance of security and quality of life in urban development [23,33,34].

The institutional development perspective acts as an enabler of the former three through the application of strategic planning, institutional leadership, and partnership principles. In KBUD's framework, governance processes established through partnership and collaboration with all local development actors are elements that improve the city's management [26–29].

Integration and balance among the four perspectives are central to the success of KBUD initiatives, and cities must give equal attention to all policy domains if they want to achieve prosperous knowledge-based urban development [32].

Cities interested in planning and implementing KBUD approaches must start by forming a long-term KBUD strategy and adapting their planning mechanisms to it [27]. A comprehensive understanding of the unique characteristics; the identity differences; the diverse socioeconomic and socio-spatial forms; and, mainly, the valuable knowledge assets of the city must be at the heart of a KBUD process [28,31,35–37]. A central position is given to universities, seen as critical knowledge assets, deeply embedded in systems of innovation and knowledge training, generation, exchange, circulation, and commercialization [35,38].

Additionally, essential for the success of a KBUD process is the ability of city managers and policymakers to establish and cultivate collaboration through a partnership model, often a triple-helix model, in which the collaborative action of the university, government, and the private sector produces innovation and economic development [39,40]. The KBUD strategy raises universities and research institutes to a more prominent position, moving from a supporting to an entrepreneurial role [39,41]. The KBUD approach also recognizes the benefits of a quadruple-helix model, where the community joins forces with the university, government, and the business sector [35,41]. KBUD's success is heavily dependent on community support and support policies [26,40]. Research on this topic has indicated that local actors play a differential role in planning and implementing efforts, and, therefore, must participate in the orchestration of the local KBUD [7]. This requires awareness amongst all local development actors on the importance of supporting the KBUD frameworks [42].

Therefore, the effectiveness of KBUD depends on how the policy is formulated, implemented, and supported. However, long-term strategic vision and sound policies, plans, and actions, although fundamental aspects for a successful KBUD, are not a trivial arrangement for most cities and, as previously seen, can be even more challenging for cities in an emerging economy context [7]. Insofar KBUD is a robust strategy capable of leveraging urban development in a smart and sustainable way, it demands the use of different approaches and instruments for successful implementation [27]. In order to make KBUD their development strategy, cities need innovative solutions and affordable tactics and tools to successfully incorporate KBUD into their urban management processes and achieve effective, inclusive, and resilient local smart and sustainable development.

To date, several cities around the world have found a way to innovation and sustainability through KBUD, including, for example, Austin (USA), Barcelona (Spain), Delft (Netherlands), Helsinki (Finland), Melbourne (Australia), Montreal (Canada), and Stockholm (Sweden) [25,32,35]. A number of others have been engaged in planning and implementing KBUD strategies in the pursuit of sustainable economic growth and prosperity, e.g., Bento Gonçalves (Brazil), Brisbane (Australia), Dublin (Ireland), Florianopolis (Brazil), Istanbul (Turkey), Monterrey (Mexico), Shenzhen (China), Shanghai (China), and Tampere (Finland) [7,23,26,28,30,35,43].

A closer look at the development journey of these cities shows that each of them took a different pathway for KBUD implementation. Nevertheless, some similarities can be drawn. Some of these cities, for instance, shared the fact of having hosted, during their KBUD implementation process, a renowned international event specifically focused on the theme of knowledge-based urban development, namely, the Knowledge Cities World Summit (KCWS) series. This, and the fact that these host cities are succeeding in their KBUD endeavors, has raised interest in investigating the relationship between international events and knowledge-based development at a local level.

### *1.2. International Events and City Development*

The connection between events and cities dates back to the beginning of urban history, as events sprung from the very fundamental human need for economic and social exchange [44]. In the last decades, cities and regions have been using events to generate a growing range of outcomes in different areas, including in the policy domain [45]. The theme of sustainability, for example, has gained much more visibility, as events such as the United Nations Climate Change Conferences (COP) and the UN-Habitat Conferences have gained importance and prominence worldwide [46–48].

Additionally, cities are progressively moving from a passive role, as merely a location or backdrop for events, towards a more proactive use, by drawing different policy agendas [49]. In the economic domain, events are commonly associated with the attraction of new investments; income generation; increases in retail activities, employment, and tax revenues; and opportunities to diversify the local economy [44,50–56]. The socio-cultural contributions assessed include knowledge exchange and the transmission of local cultural

values and traditions, while impacts often comprise improvements in the standard of living and quality of life, strengthening of local or regional identity, and increase in community's self-esteem [55–57]. Events can play a significant role in the urban landscape as well, leading to urban revitalization, regeneration, and development [5,50,52,57–61]. At an institutional level, events can contribute directly to the learning and development of the cooperation capacity [61]. The theme of cooperation is a key notion in the literature on smart cities. Drawn from John Dewey's cooperative democracy, the concept is mobilized to deal with the governance challenges and democratic deficits of Brazilian cities [62]. In the policy field, researchers have identified that events may create shared understandings capable of motivating engagement in joint action [63], or act as catalysts of change in an institutional field [47]. For instance, events can bring together actors and partners that do not often interact, creating unusual discursive spaces that enable information flows and innovation [48]. In light of this, cities have progressively adopted a more integrated approach in which events can be part of broader policy frameworks, and policymakers can employ a range of different strategies to increase the benefits of events for different stakeholders [49]. The intensity and sustainability of these benefits are dependent on whether the event is the product of a dispersed and fragmented endeavor or part of a strategic development trajectory. To maximise the benefit from hosting events, cities need to use them to serve their long-term planning or development goals [5,50,60,61]. A clear strategy for the post-event period, designed and planned with the support and commitment of local and political stakeholders, is also critical to meeting broader urban objectives [57].

This paper is specifically interested in exploring the relationship between events and a KBUD strategy by analyzing how an international event on knowledge-based development can contribute to the local KBUD of the host city. In order to do this, the study places the Knowledge Cities World Summit (KCWS) under the microscope, an international annually-held event with the aim to shed light on the various dimensions of a city's KBUD [64].

Held for the first time in 2007 in Monterrey, Mexico, throughout its editions, 11 different cities around the world have hosted the summit, namely: Shenzhen (China, 2009), Melbourne (Australia, 2010), Bento Gonçalves (Brazil, 2011), Matera (Italy, 2012), Istanbul (Turkey, 2013), Tallinn (Estonia, 2014), Daegu (Korea, 2015), Vienna (Austria, 2016), Arequipa (Peru, 2017), Tenerife (Spain, 2018), and Florianopolis (Brazil, 2019). The 13th edition, in 2020, was meant to take place in the usual face-to-face mode in Tijuana (Mexico). However, due to COVID-19 pandemic restrictions, it was held in an online summit format, with an operational base in Monterrey (Mexico).

In this study, in order to gain an in-depth view and explore the topic in different dimensions, covering contextual settings, one of the host cities was selected as an object for a case study: the city of Bento Gonçalves, which hosted the fourth edition of the KCWS in 2011. Bento Gonçalves is a small city (with over 121,000 population) located in southern Brazil, yet it is recognized on the national scene as a relevant cultural, touristic, and economic hub. The city attracted international attention in 2019 after receiving the MAKCi Award (Most Admired Knowledge City Award) as an emerging knowledge city, which increased the interest in investigating how KCWS may have affected the city's KBUD trajectory. Furthermore, taking Bento Gonçalves as a case study meets the importance of developing more studies on KBUD in medium- and small-sized cities [65,66] in emerging countries [7].

The analysis of the collected data indicated that the KCWS's role in the KBUD of the host cities is that of an enabler, promoting the exchange of knowledge, increasing awareness, building networks, and highlighting development actors' relevance to the KBUD process. In Bento Gonçalves, the study identified several KBUD initiatives and achievements, some of them dating back to an older historical context. Others are related to events held in 2011, such as the city's MAKCi Award in 2019. Among the most relevant contributions of KCWS to Bento Gonçalves' KBUD are those associated with the university's role in local development. KCWS contributed to increasing the hosting university's influence over different regional development agents and placed it at the center of the local KBUD



movement. From this, other effects and other KBUD initiatives were developed in the city, even in the region.

The remainder of the paper is structured as follows: In Section 2, we present the methodological procedures carried out in the development of the study. Section 3 reports the main research findings, which are then discussed and interpreted in Section 4. Finally, Section 5 summarizes the research content presented, highlighting lessons derived and future perspectives.

## 2. Materials and Methods

The methodological approach of this paper drew upon two main research strategies: a semi-structured interview-based qualitative analysis [67,68], which was adopted for empirical investigation of the annually held event, i.e., KCWS, and a case study strategy, which covered the contextual dynamics and particular settings on the specific case of the Brazilian city of Bento Gonçalves, which hosted the fourth edition of the KCWS in 2011.

### 2.1. Data Collection and Analysis

KCWS is promoted by the World Capital Institute (WCI), a non-profit professional association that operates as a network focused on professional community building and diffusion activities on knowledge-based development [69]. The research design included semi-structured interviews with key members of the WCI Executive Board to gain insight into KCWS as a whole and the role it plays on the KBUD of host cities. The selection of interviewees was done through purposive sampling and sought to include key people involved in the conception, development, and promotion of the KCWS since its outset. The purpose was to capture KCWS's creators and promoters' perspectives regarding the aims, achievements, and challenges of taking the event to the selected cities. This approach relied on interviewees' discursive accounts of their experiences and perceptions of the event throughout the years and how it has contributed to host cities' development.

Based on the research objectives, an interview script was developed and tested with people familiar with the research topic. After considering their feedback, the final interview guide consisted of the following five key questions: (a) KCWS's selection criteria and goals for host cities; (b) event's stakeholders and their aims for hosting KCWS; (c) achievements and impacts triggered as a result of KCWS; (d) tools, methods, and indicators to measure those impacts; and (e) challenges and opportunities regarding the summit series.

The interviews were conducted in May 2020 through Skype or Google Meet platforms, and each lasted between 45 and 100 minutes. They were digitally recorded and manually transcribed. During the interviews, some participants referred to documents and archival content to illustrate or amplify the comprehension of the topics discussed. This material was collected for analysis as a complementary source of evidence about KCWS.

Data analysis procedures were performed through the content analysis method [70,71]. A Computer-Assisted Qualitative Data Analysis Software (CAQDAS), namely NVivo, was used to support the coding process of the interviews' transcripts and later to facilitate iterations within the data coding and analysis. The process included two subsequent coding cycles [72]. For the first cycle, categories based on the key questions that guided the semi-structured interviews were defined and applied through the structural coding method [72]. Then, in the second coding cycle, the pattern coding method [72] was used to identify emergent topics, providing a second, and in some cases, even a third, level of codes (subcodes) derived directly from the interview's content. The data corpus was carefully read and analyzed multiple times in each cycle until a point of saturation [70] was reached, i.e., until no new additional topics could be identified.

### 2.2. The Case of Bento Gonçalves

In order to gain an in-depth view and explore the topic in different dimensions, covering contextual settings, we also applied a case study strategy for empirical inquiry on Bento Gonçalves. Single case design [73] was adopted, as it allowed for the observation of the

unique characteristics of the case, and simultaneously provided a longitudinal understanding of the research topic. The selection of the case occurred at the beginning of the research, during the design phase. Among the 12 cities that have hosted a KCWS, Bento Gonçalves was purposively selected due to the city's particularly revelatory conditions regarding the research issue. With an estimated population of approximately 121,000 inhabitants, Bento Gonçalves is a good representation of a small town in an emerging country like Brazil that manages to stand out regionally in terms of development.

Formed by Italian immigrants in the 19th century, the city became an important regional industrial and touristic center in the Rio Grande do Sul (RS) state, known for its high-quality wine production and furniture industry, activities strongly associated with the city's Italian cultural identity. As we have mentioned before, the city hosted the KCWS in 2011. In 2019, eight years after holding the event, Bento Gonçalves received the Most Admired Knowledge City (MAKCi) Award. Promoted by the World Capital Institute (WCI), the award aims to identify and recognize communities worldwide engaged in formal and systematic KBUD processes [74]. In addition, illuminating studies in the knowledge-based development field were developed in the years after the event, focusing on Bento Gonçalves and the surrounding region as their object of study [75,76]. All of this was reason to believe that the activities and discussions developed during the event in 2011 hold a connection to Bento Gonçalves' KBUD trajectory.

Interviews were the primary data collection method for this case study. The goal was to capture key local actors' perceptions and narratives about the KCWS in 2011, and its connection to KBUD initiatives and the achievements of Bento Gonçalves. Again, we adopted a purposive sampling approach for the selection of interviewees. Informed by content collected on WCI board interviews, the selection covered key people directly involved with the organization of the fourth KCWS in 2011. In addition, considering literature references that emphasize the central role of the quadruple-helix in KBUD [23,41], the interviews included local representatives of the four sectors, i.e., university, civil society, the public sector, and the private sector.

Semi-structured interview scripts were developed and tested, following the case study protocol and research objectives. Preliminary findings from the WCI board interviews also contributed to improving the questionnaire. Although each interview had a different focus according to each interviewee's group, the main topics addressed in the interviews were as follows: (a) KCWS organizing process, (b) the event's stakeholders and their goals in organizing/sponsoring/supporting/participating in KCWS, (c) the event's contributions to the involved institutions and the city, (d) challenges and opportunities that could have been better explored, and (e) perceptions about what makes Bento Gonçalves a smart and sustainable city.

The interviewees signed an online informed consent form agreeing to participate in the research. In total, nine interviews were conducted, seven of which through the Skype or Google Meet platforms. At the request of the participants, the two other interviews were carried out via email, with a follow-up interview being subsequently conducted through the Google Meet platform to clarify and extend some topics. Each interview lasted from 40 to 120 minutes, and all of them were conducted, manually transcribed (when applicable), and analyzed in Portuguese. Content analysis was the approach to analyze case study's interviews. The same coding process used to analyze the WCI executive board interviews was applied in the Bento Gonçalves interviews. Again, two subsequent coding cycles, using the structural coding method and then the pattern coding method [72], were performed with NVivo software.

According to Krippendorff [71], every content analysis requires a context that gives meaning to the findings and serves as a conceptual justification for reasonable interpretations. In line with this, the case study's data collection included research and gathering of documents and indicators. Document analysis [77] comprised material collected from academic literature and grey literature, including technical reports, research reports not peer-reviewed, institutional websites, legislation, and policy reports. Likewise, official

databases provided indicators and data sets for the indicator analysis. Indicators' selection was informed by the KBUD Assessment Model (KBUD/AM) [32] and included datasets and indexes related to the economic, socio-cultural, spatial, and institutional aspects of Bento Gonçalves' development. Indicator and document analyses served as a source of evidence about the facts, actions, and events regarding Bento Gonçalves' development, providing a profile of the city and the context within which we considered the interview analysis results. They were also instrumental in refining ideas, identifying conceptual boundaries, and corroborating the relevance of the categories derived from interview analysis. The documents and indicators collected also served to confront, corroborate, or augment the evidence from the interviews.

### 3. Results

#### 3.1. Interviews with WCI Executives

This section presents the results of the interviews with members of the WCI executive board. Interviewees' selection considered their seniority and involvement in the KCWS conception, development, and promotion since its outset. Accordingly, five members of the WCI executive board were interviewed, namely:

- WCI President;
- WCI (Former) Executive Director of the Events Program;
- WCI Executive Director of the Awards Program;
- WCI International Advisory Board Member #1;
- WCI International Advisory Board Member #2.

Altogether, the interviews totaled about five recording hours. Each transcribed interview was carefully analyzed to identify the interviewees' perspectives about the goals, achievements, and challenges of taking KCWS to different cities. The interviews also provided an overview of KCWS's history and hosting process.

A total of 42 codes and subcodes, grouped in five categories ("goals", "stakeholders", "hosting", "contributions", and "challenges and opportunities"), were applied (Table 1).

**Table 1.** Distribution of coding references from the WCI executive board interviews.

Category	Code Level 1	Code Level 2	References
Goals (n = 83)	Host (n = 38)	To address institution-specific agenda	13
		To learn about KBUD	9
		To build profile	8
		To leverage local KBUD initiatives	5
		To create networks	3
	WCI (n = 34)	To help cities build or improve their local KBUD	11
		To further the study and application of KBUD	8
		To promote the socialization of the KBUD community	7
		To extend networks	6
		Not-for-profit activities	2
	Alignment (n = 11)	Mutual benefits	11
Stakeholders (n = 138)		University	35
		Government	34
		Private sector	25
		Multi-stakeholder partnership	15
		Experts and speakers	10
		Local community	7
		Civil society	6
Hosting (n = 46)		International audience	6
		Bidding motivation	19
		Selection criteria	16
		Hosting process	11



Table 1. Cont.

Category	Code Level 1	Code Level 2	References
Contributions (n = 47)		Network connections	13
		Enhancement of local initiatives	10
		Growth of KBUD awareness	7
		Profile building	7
		Development of academic agenda	5
		Knowledge exchange and skill training	5
Challenges and Opportunities (n = 58)	Opportunities (n = 31)	Technology and new online platforms	11
		Consolidated methods and tools	8
		Shifting of thematic focus	8
		Update of the conference format	4
	Challenges (n = 27)	Travelling and conferencing post COVID-19	7
		Continuity of initiatives	6
		Institutional memory	4
		Resource constraint	4
		Impact assessment	3
		Maintenance of the network	3

From WCI executives' perspective, the event's "goals" (83 references) are divided between "WCI's goals" (34 references) and "host's goals" (38 references). Among the former, the most cited one is "to help cities build or improve their local KBUD" (11 references), highlighting the event's commitment to promoting host cities' development. One of the interviewees explained that, sometimes, it is just a matter of bringing KBUD awareness to the city, "... because a lot of cities, they are aware that they have this history, they have these monuments, and they have heroes of the past, for instance, but they do not use their history to trigger some more movements of the present and future. (...) and the awareness is so that they use consciously, purposefully, their capital system for development". The other WCI's goals are of a more institutional nature, "to further the study and application of KBUD" (eight references), "to promote the socialization of KBUD community" (seven references), "to extend networks" (six references), and "not-for-profit activities" (two references).

On content coded as "host's goals", the most applied subcode is "to address institution-specific agenda" (13 references), as all interviewees pointed out that, in addition to the broad topics of KBUD and knowledge cities, particular focus is given to a theme significant to the host city's context in each summit. Therefore, according to the leading host partner of each event, the local host agenda may vary from city to city. Other host's goals, according to the interviewees, include "to learn about KBUD" (nine references), "to build profile" (eight references), "to leverage local KBUD initiatives" (five references), and "to create networks" (three references).

The overall perception is that there is an "alignment" (11 references) between the local host's objectives and those of WCI. This is corroborated by the coincidence of subcodes in each category, such as "extend networks" (WCI) and "create networks" (host), or "to help cities improve their KDB" (WCI) and "to leverage local KBUD initiatives" (host).

For this matter, another aspect of interest in the analysis was understanding who the event's primary stakeholders are. In the "stakeholders" category (138 references), the agents of the triple-helix, "university" (35 references), "government" (34 references), and "companies" (25 references) are the most cited, followed by "multi-stakeholder partnerships" (15 references). "Experts and speakers" (10 references) are also mentioned as they are responsible for delivering the event's value proposition. Finally, interviewees also cited "local community" (seven references), "civil society" (six references), and "international audience" (6 references) as relevant stakeholders of the event.

The "hosting" category (46 references) includes content about the circumstances, processes, and activities that enable the hosting of a KCWS by a specific city. Three key factors are coded on this category: "city's motivation" (19 references), WCI's "selection

criteria" (16 references), and "hosting activities" (11 references). Like the goals, a city's motivation to host the event may vary according to the context and institution or group of institutions that lead the bid for hosting the summit. Interviewees cited, for example, a city's interest in showcasing its knowledge-based urban development on an international scale, as in Melbourne, Australia; or academic motivation, when universities are the main hosting partner, as in Arequipa, Peru; and sometimes it is the private sector that leads the efforts to bring the event to the city, as in Florianopolis, Brazil.

Another code in the "hosting" category is "selection criteria", which includes content about the factors considered by WCI to decide where to hold the next KCWS. Besides the practical and operational criteria, such as the organizing capacity and sufficient financial resources, interviewees indicated that a combination of stakeholders' engagement level, the current or desired KBUD level of the city, and the willingness and enthusiasm to host the event are the most relevant aspects to be considered. According to one of the interviewees, this combination is crucial for generating the proposed contributions to the host city.

The last code in the "hosting" category is "hosting activities", and this includes content about the production and execution of the event once the host city is defined. As the circumstances in which each event is held vary widely, different interviewees pointed out that there is not one concept for running a KCWS in one place. Each city's characteristics are significant, so the subjects and the sense of what is needed are very different in each place. A constant dialogue is what makes an intersection of interests possible. As highlighted by one of the interviewees, local concerns are essential, and dialogue makes it possible to format the event to fulfil each stakeholder's goals, including those of WCI.

Another codified category is "contributions" (47 references). At this point, it is necessary to clarify that during the interviews, the questions presented to the interviewees referred to the impacts of the event in the host cities. However, during the analysis procedure, we concluded that the answers were focused on the event's contributions, meaning the part played by KCWS in bringing about a result. Therefore, this content was coded as "contributions". This finding also influenced the data collection of the case study. In interviews with Bento Gonçalves representatives, the term used was "contributions".

As for the content coded in the "contributions" category, the most cited is "networking" (13 references). The interviewees pointed out that one of the most relevant event outcomes is that it triggers connections to formal and informal networks of leading global thinkers, experienced practitioners, and host city partners, enabling active engagement around KBUD. One interviewee highlighted that KCWS also brings local stakeholders together and enables them to see a way to work together in partnership and tackle their local issues around KBUD, which may produce several other positive results for the city.

The second most coded contribution is "enhancement of local initiatives" (10 references), as all interviewees indicated that the event helps improve the KBUD strategies or initiatives undertaken by the local stakeholders. Another contribution cited is "growth of KBUD awareness" (seven references), which is directly connected with the event's very reason, namely to promote KBUD and knowledge cities as a model of sustainable urban development. Interviewees also referred to the following contributions: "profile building" (seven references), as the event allows the host city to showcase itself to a highly qualified audience; "development of academic agenda" (five references), especially when the leading host institution is a university or research institute; and "knowledge exchange and skill training" (five references), as a result of the cutting-edge lectures and debates delivered by the experts and speakers brought by the event.

Finally, the last content category is "challenges and opportunities" (58 references). As a reflection of the recent COVID-19 pandemic, the most cited "challenge" (27 references) for the future is "travelling and conferencing after COVID-19" (seven references), followed by "continuity of initiatives" (six references), "institutional memory" (four references), "resource constraint" (four references), "impact assessment" (three references), and "maintenance of the network" (three references).

The continuity of initiatives is perceived as a challenge, mainly because it also depends on the host city's actors or institutions. In this sense, something that concerns some of the interviewees is how to continue contributing so that the ideas and initiatives developed during the event continue to be nurtured after the event. "Institutional memory" refers to the documentation of the events and activities carried out by WCI, and is perceived as a challenge due to the organizational nature of the institute, whose members are in different countries and dedicated to several other matters. As for the "resource constraint", the COVID-19 pandemic is expected to cause an economic crisis in the short term, causing cities to stop applying resources for events. "Impact assessment" is perceived as a challenge mainly because of the methodological aspects—for example, how to measure the intangible impacts of KCWS or how to keep track of it several years past the event. Considering that, as mentioned before, networking is one of the significant contributions KCWS brings to the city, some interviewees also mentioned that continually nurturing these networks is a challenge in the sense that it demands constant dedication.

On the other hand, the interviewees perceive different "opportunities" (31 references) for the future. They see the possibilities of "technology and new online platforms" (11 references) as a powerful instrument for responding to the challenges presented above. Virtual conferencing through online communication platforms is seen as an alternative to the difficulties brought about by the COVID-19 pandemic, and already contributed to the event's continuity in 2020. This is why the "update of the conference format" (four references) is also seen as an opportunity, preceded by "methods and tools" (eight references) and "shifting of thematic focus" (eight references). The interviewees agree that, over the years, the methodologies and frameworks used and disseminated in KCWS were well consolidated. Nevertheless, new technologies and the emergence of themes such as the Anthropocene, climate change, and the smart city phenomenon may have created some room for an update. The interviewees also see an opportunity to incorporate these themes into the smart and sustainable cities debate. Thus, through the perspective of the WCI's executive board members, it is possible to see that the event successfully involves the main KBUD agents, namely, the triple helix—university, government, and companies. However, there may be room for more civil society participation. Considering what the interviewees pointed out, the events' contributions resonate with the purposes of both the WCI and those of the host city. This can be verified by the coincidence of codes such as "to help cities build or improve their local KBUD" (goals/WCI's goals), "to leverage local KBUD initiatives" (goals/host's goals), and "enhancement of local initiatives (contributions); or "to extend networks" (goals/WCI's goals), "to create networks" (goals/host's goals), and "networking" (contributions); and also "to further the study and application of KBUD" (goals/WCI's goals), "to learn about KBUD" (goals/host's goals), and "growth of KBUD awareness" and "knowledge exchange and skill training" (contributions). This convergence seems to be connected to the event's sensitivity to the local context and host city interests, making it consistent with the local expectations.

### 3.2. Case Study Investigations and Interviews

#### 3.2.1. Bento Gonçalves in a Nutshell

Bento Gonçalves is located in the Serra Gaúcha region, in the Rio Grande do Sul (RS) state, Brazil (Figure 2). The city has its origins as a colony settled to receive part of the Italian immigrants who arrived in the region at the end of the 19th century. This Italian ancestry would later become one of Bento Gonçalves' main knowledge assets, profoundly shaping its development processes [78]. Today, with an estimated population of 121,803 [79], the city is an important regional hub, compounding the Serra Gaúcha Metropolitan Region.

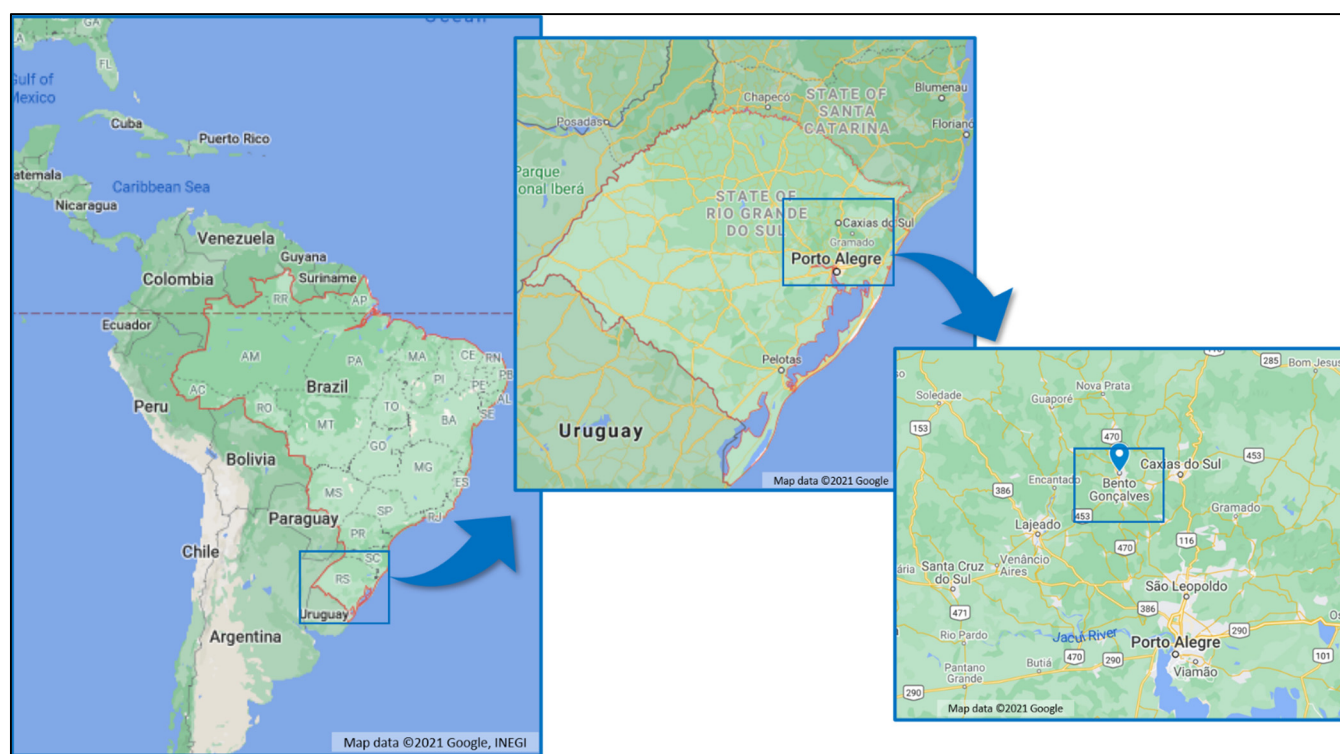


Figure 2. Location of Bento Gonçalves, drawn by the authors on a Google Map [80].

Regarding national averages, Bento Gonçalves sustains a good performance in terms of development, with a Human Development Index of 0.778, which is considered a high score and places the city in the 145th position among the 5565 Brazilian cities and 16th in the Rio Grande do Sul state [81]. Bento Gonçalves' advances in terms of development have been recognized even internationally, as in 2019, the city received the MAKCi award, taking its position among a select group of cities in the world that have been thriving under the KBUD flag.

In terms of economic development, Bento Gonçalves ranks as one of the largest economies in the Rio Grande do Sul state. In 2018 (most recent available data), the city's gross domestic product (GDP) was USD 1.54 billion, the 14th largest among the state's 497 cities [82]. Bento Gonçalves is listed in the national "Best Cities to Do Business" ranking, moving from the 84th position in 2014 to the 18th position in 2019 [83]. The industry sector represents the main economic activity, with a 59% share in the municipality's revenue, followed by the commercial (21.2%) and services (19.8%) sectors [84]. One interesting aspect of Bento Gonçalves' economic development is the presence of a strong cultural identity associated with the Italian pioneers and their entrepreneurial spirit [85]. The first companies were family-owned and started production to supply the local demand [76,86].

The timber and furniture industry is one of the most relevant segments in the Bento Gonçalves economy, accounting for the most jobs (13.4% of all formal jobs in 2018) and revenues (45% of total industrial sector revenues in 2018) for the city [84]. Bento Gonçalves also stands out on the national scene for its grape and wine production. The city is known as the "Brazilian Capital of Wine", and incorporates the largest and most important wine region in Brazil, i.e., the Serra Gaúcha region, which accounts for about 85% of the national wine production [87]. Bento Gonçalves' tourism sector has significantly benefited from the grape and wine industry's performance, which placed the region on the map of national and even international wine tourism [76].

Regarding sociocultural development, Bento Gonçalves stands out, together with other cities in the region, for its good human and social development levels. In the Rio Grande do Sul state, the government monitors the municipalities' societal development through IDESE,

the Socioeconomic Development Index. Bento Gonçalves scored an IDESE of 0.834 in 2018, ranking as the first in the state among the municipalities with more than 100,000 inhabitants and 19th in the general ranking [88]. Notably, Bento Gonçalves has been investing in education as a development strategy. In Brazil, the Federal Constitution requires states and municipalities to invest at least 25% of their income into maintaining and developing education. In the case of Bento Gonçalves, spending on education has been exceeding the constitutional minimum in the last decade [89]. For instance, the city's investment ratio in 2018 (29.8%) was even higher than that of the state (26.7%) [89,90].

Bento Gonçalves also stands out as a regional hub of higher education. Some of the institutions located in the city are listed among the best in the country, such as the University of Caxias do Sul (UCS), 42nd in the national ranking, and the State University of Rio Grande do Sul (UERGS), ranked 163rd [91]. In particular, because of its community DNA and central role in the region's development, UCS has been a relevant institution in terms of Bento Gonçalves' KBUD. In addition to teaching and research, UCS promotes various initiatives to foster regional entrepreneurship and scientific and technological innovation. For instance, since 2015, the University has maintained a Science, Technology, and Innovation Park—the TecnoUCS. One of the park's most notable projects is UCSGRAPHENE, the first and largest industrial graphene production plant in Latin America installed by a university [92].

As for spatial development, Bento Gonçalves experienced a very intense increase in population in the last century (43,144.76% from 1876 to 2009) due to vegetative growth and both internal and external migratory attraction [93,94]. As in many other cities in Rio Grande do Sul and Brazil, Bento Gonçalves' urbanization process intensified since the 1950s due to expanding national industrialization programs and countryside mechanization [94]. Today, 47.7% of Bento Gonçalves' territory is of urban occupation [95], with the vast majority of the population being urban (92.3%) [96].

These fast urbanization processes, driven by rural exodus and migratory processes induced by economic development, brought some challenges to the city [93]. In Bento Gonçalves, whose geomorphology imposes limitations on urban growth, there are issues such as irregular occupations and settlements in risk areas [97,98]. On the other hand, an interesting aspect of the spatial organization of Bento Gonçalves concerns the relevance that the city gives to the protection of the cultural landscape and the preservation of the traditional rural zone, the locus of the wine and cultural tourism [99].

Finally, in terms of institutional development in Bento Gonçalves, it is possible to observe different participation spheres and groups of actors involved in urban development governance. The Regional Development Council (COREDE) is one of these spaces where strategic development plans are debated and voted, guiding the state budget application in the region. Bento Gonçalves is part of COREDE Serra, composed of 32 municipalities. COREDE Serra elaborated, in a participatory manner, through micro-regional assemblies, the Regional Development Strategic Plan 2015–2030 [100], which includes a portfolio of KBUD projects such as implementing technology parks by attracting national and foreign technology-intensive companies, promoting technology-intensive sectors, creating an innovation program, strengthening the TecnoUCS through the triple helix, identifying and developing the regional innovation ecosystem, creating local productive arrangements in technology-intensive segments, and strengthening the Serra Technological Modernization Pole. However, to date, only a few of the projects listed in the plan have made progress. Even so, the existence of the plan and the fact that it is being discussed by the community indicates a level of KBUD awareness, as well as the region's desire to move forward on this path.

Another notable local feature in terms of institutional arrangement is local public managers and government leaders' ability to congregate in regional organizations in order to strengthen their institutional capacity. Organizations such as AMESNE (Municipalities of Northeast Upper Hillside Association), composed of 36 municipalities represented by



their respective mayors, and the Regional Parliament of Serra Gaúcha, with representatives of the City Councils of 24 cities in the region, are examples of this.

Bento Gonçalves' business community also stands out for its institutional leadership and participation in urban development. One of the most active local bodies is the Bento Gonçalves Centre for Industry, Commerce, and Services (CIC-BG), which acts directly in a series of planning and governance initiatives for sustainable development, such as Bento+20. In October 2020, Bento+20 delivered a masterplan [95] to the city, with the main purpose to make Bento Gonçalves a smart and sustainable city until 2040. Taking the United Nations Sustainable Development Goals and ISO 37120 and ISO 37122 standards as a guideline, the masterplan presents guidelines and a detailed action plan considering ten thematic areas (technology, innovation, and entrepreneurship; education; health; safety; industry, commerce, and services; tourism and culture; urbanism, urban mobility, and infrastructure; environment and sustainable development; citizenship; and rural development).

### 3.2.2. Case Study Interviews

This section reports the findings of the nine interviews carried out with Bento Gonçalves' representatives. The interviewees were selected considering their involvement with the fourth KCWS in 2011 and/or their local representativeness in one of the four quadruple-helix sectors, i.e., university, civil society, the public sector, and the private sector. Accordingly, the following representatives were interviewed (Table 2).

**Table 2.** Profiles of the Bento Gonçalves interviewees.

Relevance	Interviewee No	Position
Local organizing committee member	Interviewee #1	University of Caxias do Sul (UCS) professor and KCWS local chair in 2011
Local organizing committee member	Interviewee #2	UCS professor and member of the local organizing committee in 2011
Local organizing committee member	Interviewee #3	UCS professor, innovation centre director and member of the local organizing committee in 2011
Local organizing committee member	Interviewee #4	UCS professor and member of the local organizing committee in 2011
Local organizing committee member	Interviewee #5	UCS professor and member of the local organizing committee in 2011
Academic conference participant	Interviewee #6	UCS tele-diffusion director and KCWS attendee in 2011
Public sector conference participant	Interviewee #7	Former mayor of Bento Gonçalves
Civic society leader conference participant	Interviewee #8	President of the Rio Grande do Sul Regional Development Council
Private sector conference participant	Interviewee #9	Leading furniture company executive manager and KCWS attendee in 2011

Altogether, the interviews totaled over seven recording hours, plus 15 pages of written interviews. The complete content of the interviews, written or transcribed, was carefully analyzed to capture key local actors' perceptions and narratives about the KCWS in 2011, and its connection to KBUD initiatives and projects developed in Bento Gonçalves.

### Bento Gonçalves Summit

Before entering the content analysis itself, a brief background about the fourth KCWS in Bento Gonçalves is presented below. This content is based primarily on the organizing committee interviewees' narratives, complemented by document analysis, and seeks to give insights about the particular settings and the context in which the KCWS was carried out.

Three main factors concurred to bring the event to Bento Gonçalves. The first of them concerns the historical role of the University of Caxias do Sul (UCS) in advancing the KBUD agenda in the region. According to the interviewees, since at least 2003, UCS had been cultivating institutional partnerships and connecting its professors and researchers with universities and institutes particularly dedicated to studying knowledge management and knowledge-based development disciplines, such as WCI and Ibero-American Community for Knowledge Systems (ICKS). These events are relevant because they connected local actors, especially UCS's researchers, to some of the most engaged and cutting-edge international communities in the KBUD discipline. By the time the KCWS was held, a UCS professor had integrated WCI's international advisory board, and there were two ICKS active cells in the region with regular meetings and debates joined by other professors, students, business people, and even community representatives. These initiatives were the first steps in raising local awareness about the potential of KBUD. Much of the local support that KCWS received in 2011 was due to these previous initiatives, which set the stage and contributed to the community's comprehension of the proposed debate.

The second factor concerns the involvement of these same UCS professors and researchers in local networks and organizations dedicated to regional development. These local networks played a fundamental role in making the event happen. For instance, one of the main host partners of the fourth KCWS was the Furniture Innovation Management Center (CGI), whose director, also a professor at UCS, was a member of the local organizing committee. CGI's participation was crucial in connecting the business sector, especially the timber and furniture segment, to the event. Representatives, entities, and companies of the industry not only attended the KCWS, but also sponsored the event. In addition, due to UCS professors' networks, the event had the support and sponsorship of government representatives, such as the Municipality of Bento Gonçalves and AMESNE (Municipalities of Northeast Upper Hillside Association), and the contributions of different local businesses and organizations.

Finally, the third factor concerns WCI's institutional connections themselves. In 2011, the fourth KCWS was a joint conference with the IX ICKS conference. Like WCI, ICKS also holds annual meetings to gather the knowledge systems community and discuss specific topics of the field. Bento Gonçalves was selected as the host city for the 2011 ICKS Conference the previous year, in 2010. Some WCI board members were simultaneously members of ICKS, and started to consider holding the KCWS and the ICKS conference together, as the potential for synergy between both was clear. When preparations for the ICKS event were already underway, the proposal was made to hold the two events together. Accordingly, the fourth KCWS and the ninth ICKS conference took place on 26 and 27 October 2011 in Bento Gonçalves. The general theme of the fourth KCWS was "Knowledge Cities for Future Generations", specifically addressing aspects such as cultural tradition, knowledge, and innovation in the community's future. Altogether, the event received about 200 participants—an expressive amount, according to the interviewees, considering the representativeness of those who attended.

### Content Analysis

The findings of the content analysis on Bento Gonçalves' interviews are presented in this section. In total, five categories and 26 codes were applied (Table 3).

**Table 3.** Distribution of coding references from the Bento Gonçalves interviews.

Category	Code Level 1	Code Level 2	References
Goals (n = 9)	Business sector (n = 5)	Learning about KBUD	5
	Public managers (n = 2)	Learning about innovation and city cases	2
	University (n = 2)	Contribute to city development	2

Table 3. Cont.

Category	Code Level 1	Code Level 2	References
Stakeholders (n = 70)		University	13
		Local government	12
		Private sector	16
		Sectoral organisations and non-profit entities	11
		Experts, speakers	5
		Local community	5
Hosting (n = 14)		ICKS	8
		Local leaders	14
Contributions (n = 72)		Network connections	11
		KBUD awareness	16
		profile	5
		Academic agenda	12
		Knowledge exchange and skill training	13
Challenges and opportunities (n = 14)	Opportunities (n = 8)	University's role	15
		Local actors' commitment	5
	Challenges (n = 6)	Broader audience	3
		Balanced audience	2
		Funding	4

The “stakeholders” category (70 references) aggregates citations about the local agents who attended or were involved with the event in 2011. Similar to WCI members, Bento Gonçalves’ interviewees indicated “private sector” (16 references), “university” (13 references), and “local government” (12 references) as the main stakeholders of the event. As the fourth KCWS was a joint event with the ICKS conference, “ICKS” (eight references) is also a frequently mentioned stakeholder. In Bento Gonçalves, the particularity is the involvement of different types of “sectoral organizations and non-profit entities” (11 references), which directly or indirectly contributed to the event, as mentioned above. The interviewees also pointed out “local community” (five references), e.g., local small merchants and suppliers, as playing an essential role in supporting the event, and the “experts and speakers” (five references) as one of the summit’s main differentials.

The “goals” category (nine references) includes references to the multiple stakeholders’ aims in participating in the event. Overall, learning from international experts was the main objective of those who attended the event. The “business sector” (five references) audience expressed an interest in learning about innovation, KBUD, sustainable development, and knowledge management. According to the private sector interviewee, many executives or managers of local companies were postgraduate students in a knowledge management program offered by UCS at the time. They became aware of KBUD through the course and therefore recognized the opportunity to learn and exchange experiences that the event would provide. The “municipalities representatives and public managers” (two references) were interested in learning from city cases and experiences worldwide about innovation and the future of cities. As for the university (two references), as highlighted by the academic interviewee, supporting the event was taken as an opportunity to contribute to the region’s development and advance the commitment as a community university.

The “hosting” category (44 references) includes references about the context, circumstances, and activities related to the hosting of the KCWS. Most of its content corresponds to storytelling about how the event happened in Bento Gonçalves, what it took to organize the event in the city, how it was experienced, and so on, and has already been presented in the previous section. However, one topic in particular emerged from the speeches of different interviewees, namely, the crucial role of some “local leaders” (14 references) in making the event happen. In the case of the fourth KCWS, different interviewees coincided in pointing out the strong leadership of UCS professors as the critical factor in making the event feasible.

The “challenges and opportunities” category (14 references) includes content about the main difficulties observed by the interviewees regarding the event and the possibilities of improvement. “Funding” (four references) was emphasized by the organizing committee interviewees as the main challenge. As a small town, Bento Gonçalves and its companies and institutions have fewer resources available for sponsoring events and conferences. According to the interviewees, this difficulty was overcome with the involvement and sponsorship of several entities, local companies, UCS, and the Municipality of Bento Gonçalves, who collaborated to make the event happen. Some organizing committee interviewees also pointed out the challenge of achieving the right balance, in terms of “audience” (two references), between academics, government representatives, business leaders, and practitioners, so that the event could create a movement all across the city. According to the interviewees, this challenge was overcome thanks to the influence of those local leaders who activated their networks, ensuring the main local actors’ participation.

As for the opportunities, the organizing committee and university’s interviewees suggested that a greater effort could have been made to involve a “broader audience” (three references), such as universities and municipalities from the rest of the state or even the country. One of the interviewees stated that this would have allowed institutions directly involved with the event, such as UCS, to explore its strategic potential better. Meanwhile, different interviewees among those who do not belong to the organizing committee mentioned an untapped opportunity of using the event to induce local actors to “commit” (five references) themselves to local development projects. These interviewees coincided on the expectation that, after the event, some groups of actors or local leaders would have addressed concrete initiatives, directly assuming commitments, plans, or actions.

Regarding the content coded in “contributions” (72 references), the most significant number of citations are in “KBUD awareness” (16 references) and “university’s role” (15 references). In all of the interviewees’ groups, the perception is that one of the main contributions of the event in 2011 was to raise awareness on local actors about the themes of KBUD and knowledge cities. According to the civil society representative, “many regional and business leaders have been contaminated by the debate of the knowledge city” s due to the event. Other interviewees also mentioned the effect on the business community, recalling that this awareness raised the local business sector’s interest in monitoring the city’s development progress through the KBUD methodology, which was later accomplished through a partnership between CIC-BG; the Bento Gonçalves Centre for Industry, Commerce, and Services; and UCS for the publication of the Bento Gonçalves’ capital system [75,101].

The perception of how much this growth in KBUD awareness has unfolded into local development initiatives differs among respondents. Some interviewees indicated that it was not translated into concrete local initiatives after the event. Those who share this view, in general, referred to these initiatives as if they were the exclusive responsibility of the public authorities. On the other hand, other interviewees, including government and civil society representatives and others from the organizing committee, indicated that this growth in KBUD awareness paved the way for different local initiatives, especially those developed by or in partnership with local universities.

In line with this, recognition of the “university’s role” (15 references) is the next codified contribution. Interviewees indicated that the KCWS in 2011 was fundamental in increasing UCS’s influence over different development agents in the region and placing the university at the center of the local KBUD movement. One interviewee highlighted that due to the event, collaboration and data sharing processes could be established between the university and different institutions, including the municipal government. This, in turn, allowed UCS to advance and consolidate research on the topics of KBUD. The outcomes of these studies generated valuable insights that were shared with municipal management. According to the local government representative, the university acted as a translator, making the KBUD concepts more “palatable” so that the city administration could transform them into policies. The university representative pointed out that the KCWS consolidated

and gave more visibility to this group of UCS researchers involved with the theme, who had become a KBUD reference even at a national level. According to one of the organizing committee interviewees, by bringing to the debate ideas such as the university's central role in a development process, the KCWS contributed to materialize UCS's protagonism in other spheres, expanding its influence on regional and even national levels.

Another mentioned contribution concerns "knowledge exchange and skill training" (13 references). Among the interviewees who attended the event, there is a consensus that one of the most positive aspects of the event was the high quality of the content transmitted, mainly due to the high level of international speakers, who brought research and experiences from different parts of the world. One of the organizing committee interviewees pointed out that KCWS is an accelerator capable of connecting attendees with the best in terms of knowledge, and "having accessed this cutting-edge knowledge created a movement in the community, in people who attended the event".

Contributions to the "academic agenda" (12 references) are also cited by interviewees linked to the university, whether from the organizing committee or not. Among the advances related to the fourth KCWS, the interviewees mentioned the following ones: the promotion of the postgraduate program in knowledge management, the consolidation of knowledge-based development as a line of research in the graduate program in administration, an increase in the number of master's and doctoral studies on the subject, the strengthening of partnerships with researchers from other countries, and publications in renowned journals of the field. After the fourth KCWS, further research on the capital system, as a value-based tool, began to be developed by researchers of the university (see [75,102–104]), culminating with the creation of the Brazilian Knowledge-Based Development Observatory in 2018. According to one of the organizing committee interviewees, this trajectory was inspired by the KCWS in 2011. Furthermore, the university representative highlighted that the event in 2011 expanded the KBUD debate within UCS itself to the point that it became a guideline for the university's current Institutional Internationalization Plan, which can also be considered a legacy of the event.

Among the organizing committee interviewees, another contribution cited with emphasis is creating or strengthening "networks" (11 references). The interviewees of this group mentioned that the dynamics of the event favored interaction, allowing for the connection between professionals, researchers, and speakers from all around the world. At an institutional level, the event provided the opportunity to strengthen the connections and develop joint projects between UCS and other institutions such as ICKS, WCI, the Municipal Government, and AMESNE. The creation or strengthening of these connections also expanded the possibilities for academic dialogue, allowing for collaborations that significantly accelerated research development and KBUD application in the region, according to an organizing committee interviewee.

The organizing committee interviewees also highlighted that the event gave "profile" (five references) to Bento Gonçalves before the international participants and speakers. In the analysis of some interviewees, having these experts visiting and getting to know some of the city's attributes boosted Bento Gonçalves reputation on KBUD and contributed to its nomination in the MAKCi Award in the following years.

#### 4. Discussion

Looking at the results of the interviews with WCI executives and representatives of Bento Gonçalves, some insights into KCWS' contributions to the KBUD of host cities come to light. There is a significant overlap between the motivations to host the KCWS reported by Bento Gonçalves representatives and those pointed out by WCI executives. In general, regarding the host, the main goals correspond to learning and leveraging the city's initiatives, especially those of the hosting partner institutions. As for the event's main stakeholders, it is possible to see that the event successfully involves the main KBUD agents, namely, the triple helix (university, government, and private sector). Nevertheless, there may be room for more civil society participation, although references to "local community",



“non-profit entities”, and “civil society” also occurred in both cases. Regarding hosting requirements, it is clear that the type of motivation and commitment that WCI seeks to find in a host depends a lot on the leadership and involvement of local leaders in the event’s organization, as pointed out by Bento Gonçalves’ interviewees.

The category with the most matches is “contributions”. There is a meaningful alignment between the contributions visualized by the event promoters and those perceived by the host city. On the tail of the event’s goals, the interview analysis indicates that knowledge exchange is one of the main contributions of the event. The KCWS, as an international summit with the field’s leading experts and researchers, acts as a facilitator for knowledge transfer on topics related to KBUD and knowledge cities. Consequently, KCWS also contributes to raising KBUD awareness among the local actors who attend the event. KBUD awareness, as defined by one of the interviewees, is this capability of understanding and employing local knowledge assets, and it is fundamental for the engagement of local actors in any KBUD initiative [23,42].

Events may act as institutional catalysts, facilitating the cooperation and collaboration among local actors [57,61]. In line with this, “networking” is the most cited contribution of the event among WCI interviewees, and is also highly referred by Bento Gonçalves representatives. In Bento Gonçalves, the KCWS strengthened pre-existing relationships and allowed for new connections between local actors and leading academics, professionals, and policymakers from all around the world in collaborative networks. In this sense, KCWS enhanced the local actors’ ability to establish and nurture collaboration through partnerships, which, as we previously presented, is essential for the success of a KBUD process [40].

Another contribution pointed out by both groups of interviewees was the opportunity to gain an international profile as a knowledge city. In the case of an international conference such as KCWS, which draws together leading national and international specialists and practitioners in their fields, hosting the event conveys a message about the city’s development intentions. In 2011, KCWS provided an opportunity for Bento Gonçalves to position itself as a city engaged in cutting-edge development strategies such as KBUD.

Both WCI’s and Bento Gonçalves’ interviewees highlight contributions and developments in the academic sphere generated by the event. This type of contribution is especially relevant for KBUD, which advocates that the knowledge produced by the universities is a substrate for the smart and sustainable development of cities. In the case of a community university like UCS, whose institutional identity is so deeply intertwined with the region, academic advances have the potential to project the development of the entire region.

Finally, one last contribution emerges from the interviews, however, it is pointed out only by Bento Gonçalves representatives, which is the elevation of the local university (UCS) to the role of a protagonist of local development. Since its foundation, UCS has been a university deeply involved with the region’s development process. The fourth KCWS, however, contributed to increasing UCS’s influence over different development agents in the region and placing the university at the center of the local KBUD movement. As seen in previous sections, having the university moving from a supporting role to a more entrepreneurial one is key in any KBUD strategy [39,41]. The KCWS not only conveyed this vision to the participants, but also presented UCS as an agent capable of leading this movement.

The fact that only Bento Gonçalves’ interviewees mentioned this contribution suggests that its occurrence may be associated with a particular context. In fact, it is necessary to consider the context’s effect on all of the results. The contributions are deeply connected to the event’s central theme: KBUD and knowledge cities. Should the event be on a different topic, there might be different effects. The way these contributions developed in Bento Gonçalves is linked to the context in which the city is inserted. As presented before, UCS is a community university founded with the purpose of contributing to the development of the region. Years before the fourth KCWS, the university was already engaging in projects in the KBUD field. In fact, the event in 2011 was largely due to the institutional collaborative

partnerships established years before between UCS, and other institutions dedicated to the subject. Furthermore, UCS professors and researchers were already actively engaged in projects on the topics of KBUD and knowledge cities by the time the event occurred. The outcomes could also be different if it were not a small city where the central university is already on a path to expand its relevance in the local development process.

The context is also relevant when considering how those contributions developed. Social and community identity can enhance the knowledge exchange process [105], and as a university with a community identity, UCS is highly distributed and embedded in the region. In this way, UCS's presence in different municipalities also makes it an integrating element that facilitates the exchange of knowledge between cities in the region. By connecting to an international event such as KCWS, UCS had the potential to take all the event's cutting-edge content to other development agents in the region, expanding the reach of these ideas.

UCS's role can also be perceived through the studies produced by this group of researchers directly involved with KCWS in 2011. Many of these studies were presented to the municipal government and supported the city's planning and policymaking. This is also a critical aspect for KBUD: providing city administrations, planners, and policymakers with data and knowledge for informed decisions and evidence-based policies [32,40]. However, data collection on Bento Gonçalves did not find evidence of a plan structured by the city with goals and measures to become a knowledge city, as occurred, for instance, in cities like Monterrey, Mexico, and Melbourne, Australia. Nevertheless, we identified that these studies developed by UCS's researchers supported, in the subsequent years, the nomination of Bento Gonçalves for the MAKCi award, which recognizes cities around the world for their successful KBUD strategies. The award in 2019, therefore, was a confirmation of Bento Gonçalves' progress.

In fact, common to all contributions presented is the university's leadership and action, whether developing research and delivering results to society, connecting groups, or producing innovation. Strong leadership, with meaningful networks and partnerships to support it, is one essential component for a prosperous KBUD [106]. In this sense, as relevant as UCS's institutional leadership is the leadership exercised by UCS professors and researchers, who often took the lead in the city's development and planning initiatives and projects. These professors and researchers put their networks, research, and knowledge as resources for the advancement of the community. This adds to the university's role as a protagonist in Bento Gonçalves' development as well. Highlighting UCS in this role was one of the main contributions of the fourth KCWS to Bento Gonçalves' development. It is necessary to recognize, though, that the interviewees in Bento Gonçalves were very much inserted in the university context. Nonetheless, the document analysis found evidence of UCS's constant activity in matters of local development. University representatives participate in the main local planning bodies; UCS professors direct or integrate relevant sectoral organizations; the university even provides the physical structure for, for example, COREDE Serra meetings held periodically. Of course, UCS effectively acts as an innovation and technology development agent by furthering projects such as the graphene production plant.

Overall, as could be grasped by this study, the KCWS contributions compose a web of enablers and potentials that can unfold in different outcomes and achievements. They depend on stakeholder's engagement and leadership to continue and unfold into plans, actions, and results. We have found that contributions may occur through knowledge transfer on the trending topics addressed at the event, which also increases the KBUD awareness among the audience and those involved in the event. Knowledge exchanged is leveraged by the relationships and networks to which the event connects, from which comes learning, collaboration, and partnerships in initiatives that can range from academic research to the implementation of KBUD plans and projects. Moreover, because it is a highly qualified international networking platform, the event also promotes the host city to a very qualified group of professionals and thinkers worldwide, contributing to the city's

image. All these contributions' potential is largely linked to local leaders' capacity to enrich and nurture these networks over time, making them evolve and grow.

The event can also contribute to making these local leaders emerge and elevating them to the role of protagonists of local KBUD. The involvement of the various local actors, especially the university, in the development processes is one of KBUD's premises. KCWS favors the interaction of these actors and helps their positioning within this process. This may be the most relevant contribution of an international event for the local KBUD.

In the interviews, continuity is pointed out as one of the main challenges of holding an event such as KCWS. It appears in the speeches of WCI executives and in those of Bento Gonçalves' representatives when they talked about untapped expectations of having development agreements and projects been launched during the event. An event is a definite point in space and time—a spark. Nevertheless, in general, whoever promotes, organizes, or participates in an event focused on city development may hope that the flame will remain lit, that someone will transform the ideas and aspirations discussed at the event into plans, actions, results, and hopefully impacts. The literature review demonstrates that events can go beyond contributions and generate effective impacts in the economic, social, environmental, and institutional fields. For that, it must be part of a structured development program instead of a dispersed and fragmented enterprise [53]. Inserting and working upon trajectories, taking the event as part of a more integrated development approach can maximize its benefits for a range of different stakeholders and enable the achievement of more meaningful goals [49,60]. The experience of other cities that tried to leverage their development process with events showed that a strategy for the post-event period, designed and planned with local actors' support and commitment, is essential [57].

Therefore, continuity depends largely on the engagement and empowerment of the local actors involved with the event. This is why raising a local actor to the role of KBUD's protagonist is such a significant contribution of KCWS. In the case of local hosts, governments often change, people move, priorities shift. However, when the development process's leadership is shared with perennial institutions, such as the university, planning is more likely to be realized.

In Bento Gonçalves, history and the Italian ancestor cultural traditions were knowledge resources used to promote economic activities and development. Throughout the years, the city transformed intangible aspects of knowledge such as cultural identity and traditional values into economic development [105] in different sectors, such as the furniture, wine, and tourism segments. In October 2020, the Bento+20 Masterplan was launched with guidelines, goals and actions to make Bento Gonçalves a smart and sustainable city by 2040. In order to fully realize the plan, Bento Gonçalves will need a systemic approach that includes a governance model capable of integrating all city actors and all development dimensions. KBUD provides such strategic and integrated approach for the transition of smart and sustainable cities [21–23] and places the university in a central position as a critical asset for development and innovation [35]. It also highlights the importance of creating institutional arrangements in a combination that favors the collaborative action of university, government, the private sector and civil society to produce innovation and economic development [39,40]. Many of these aspects were brought to Bento Gonçalves by the KCWS, and to become truly smart and sustainable, not losing sight of KBUD's strategic approach is a good practice.

## 5. Conclusions

When this study started in 2019, the world was not yet alert to the COVID-19 pandemic. The situation changed in 2020, drastically affecting cities' relationship with events and the way they carried them out. Nevertheless, the pandemic also invited us to reflect on the importance of gathering together and how events have an impact on city's economic and sociocultural functions. As events become viable again, the findings of this study are a powerful signal for the various cities in the context of emerging countries and those interested in building or improving their local development strategies with events.

Furthermore, it reinforces how KBUD is a tangible and viable local development strategy, even for small cities or cities located outside the central urban axes. Hosting an event focused on KBUD, such as KCWS, can not only promote the city's intent, but also help it bring together the various actors relevant to the development process and encourage them to build shared understandings enabling engagement in joint projects. Furthermore, Bento Gonçalves' case reveals some fruitful initiatives that cities can employ under the flag of a KBUD strategy. One of them is prioritizing endogenous economic activities based on local knowledge resources and intangible assets, such as cultural identity and traditional values. Placing the local university as a key agent of the development process, establishing with it strategic partnerships for knowledge transfer and innovation development, is another fundamental aspect. Creating institutional conditions for the engagement and participation of the business community and civil society in the city's development and management processes, with strong leadership and meaningful networks and partnerships to support it, completes this story.

Lastly, Bento Gonçalves' successful experience with KCWS may also serve as a reference for city managers, policymakers, and executives inserted in similar contexts and wishing to follow the KBUD path. In addition, this conclusion provides the following list of lessons learned from Bento Gonçalves, which may also be of relevance to other cities with similar goals:

- The local university has a relevant role in carrying out events of this type, as it has the means to seek and establish collaborative institutional partnerships with other universities and institutes focused on promoting events such as KCWS.
- Local leaders play an essential part in activating local networks and anchoring the ideas in the community. This is why it is crucial to have some of these leaders on the event's organizing committee, acting directly from the initial preparations to the post-event.
- In particular, Bento Gonçalves demonstrated that university professors and researchers are relevant leaders in knowledge-based development contexts and can contribute to bringing events such as KCWS to the city. Furthermore, their research, knowledge, and networks may also facilitate the unfolding of the event's topics into actions for city's development.
- Funding the event can be a challenge. Bento Gonçalves overcame this issue by seeking sponsorship with several organizations from different sectors. This arrangement also favored these organizations' engagement, as they not only sponsored, but also took part in the event;
- Engaging local actors around the event is essential in order to obtain results in city development. The involvement of the four sectors of the quadruple helix, i.e., government, companies, university, and civil society, provides representation; facilitates knowledge exchange and collaboration; and expands the reach of the ideas, concepts, and experiences addressed during the event, creating awareness city-wide.
- Involving a broader audience, such as municipalities across the country and national and international institutions, may be a way of bringing visibility to the host city and establishing strategic partnerships. This was an untapped opportunity in the Bento Gonçalves case.
- Using the event to induce local actors' commitment to development projects is a path towards the continuity of ideas, plans, and initiatives. Events such as KCWS can create the ideal environment for signing cooperation agreements or launching action plans.
- Therefore, having a strategy for the post-event period, designed and planned with local actors' support and commitment, can generate even more effective contributions to the city. This was an untapped opportunity in the Bento Gonçalves case.
- The implementation and continuity of the ideas discussed at the event depend a lot on the local actors' level of engagement and leadership over time. For this reason, sharing this leadership with perennial institutions, such as business, civil society

associations, and the university, is a strategy that contributes to the realization of the development vision.

- International events do contribute to the knowledge-based development of cities. The obtained results, however, are just a glimpse into the relationship between events and KBUD. Future studies should explore the other KCWS host cities' cases and analyze the relationship between the event and local development. Moreover, in line with Eisenhardt's [107] approach to multiple case studies, new research could draw on the replications, contrasts, and extensions to obtain theoretical generalizations. In addition, a line of investigation on how the contents presented in KCWS unfold into plans and programs in the host cities can broaden their application in public policies. A relevant aspect that can be further explored concerns the spatial dimension of KBUD and how events can affect it. Furthermore, the contributions identified in this study also pointed to the investigation of the impacts generated by the event. From the trajectories of the contributions and focusing on KBUD, one could seek to measure and analyze the direct and indirect impacts connected to the event.

Lastly, the following limitations should be noted when interpreting the research results. The interviews conducted in this study captured the perspective of actors deeply involved with the event under investigation and, therefore, may not represent all local stakeholders' views. While we contend that some unintended bias may be extant, our use of the NVivo coding platform aimed to mitigate much of the biases that seep in when conducting qualitative interviews. Concerning the analysis, Bento Gonçalves' characterization and indicator analysis were done qualitatively. The use of a consolidated assessment model, such as KBUD/AM, the quantitative performance assessment model to evaluate the KBUD achievements of cities [32], would have added objectivity and comparability to the analysis. In addition, a single case study allows for a limited generalization of the obtained results. Analyzing other host city cases could provide a gain in empirical generalization.

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