Impact of planning mandates on local plans: A multi-method assessment

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An increasing number of subnational government bodies mandate municipalities to establish a vision for their future development with a local plan. Outside the United States, few studies have assessed whether these mandates succeed at increasing formal quality, policy focus and implementation of local plans. In addition, the reasons that prompt governments to impose mandates remain unclear. To tackle these issues, we used a multi-method approach combining interviews, plan content analysis and questionnaires to compare mandated and voluntary planning in Switzerland. Our analysis reveals that mandates only have limited impact on local plans. In particular, they do not produce higher quality plans than voluntary planning and do not improve implementation of policies. To increase the quality of local plans, we suggest that planning mandates provide more guidance regarding the formal structure and the content of the plans. It is also proposed that planning mandates be paired with financial incentives and technical assistance to increase local commitment and capacity. However, such accompanying measures are costly and would consume considerable resources from planning agencies. Future studies should examine how to find a compromise between mandated and voluntary planning to focus subnational and local capacity towards delivering well-crafted local plans at key locations.

Keywords: planning evaluation; policy focus; plan quality; comprehensive plan; intergovernmental coordination

1. Introduction

The role of plans in the planning cycle has been a topic of continuous debate over the past decades (Alexander, 2011; Baer, 1997; Elinbaum & Galland, 2016). Questions have been raised concerning whether plans are indeed needed (Neuman, 1998), and whether they should be mandatory and, if so, how they should be conceived and evaluated (Hoch, 2007; Laurian et al., 2010; Talen, 1996). The answers to these questions are far from straightforward, and have always been framed with respect to the particular context of the planning process, divergent planning traditions under consideration within those contexts and the levels of governance. Nevertheless, no matter the scope and context, plans have remained one of the main tools to guide future growth and development of communities (Guyadeen & Seasons, 2016).

1 At the local level, municipalities are increasingly expected to adopt proactive planning
2 approaches beyond zoning and to be actors in their own development (Gerber, 2016; Normann
3 & Vasström, 2012). To support these efforts, many national and subnational governments have
4 adopted legislation that requires or encourages local communities to develop local plans
5 (Bunnell & Jepson Jr, 2011; Gilgen, 2012). Local plans are first and foremost a vision to steer the
6 long-term development of municipalities. They include goals, policies, and strategies to guide
7 local decisions towards achieving the desired spatial development, are developed in a
8 participatory process involving local stakeholders, must be accepted by the community and be
9 adopted by its elected officials. (Randolph, 2004). They may be sectorial—focusing on selected
10 themes such as transportation or energy—or comprehensive—in which case they strive to
11 coordinate a wide range of goals (Gilgen, 2012). The latter are known in the international
12 literature as "comprehensive plans", "general plans", "master plans" (US, China), or "official
13 community plans" (Canada) (Norton, 2008; Randolph, 2004; Stevens, 2013).

14 The content and quality of local plans may be influenced by the municipal planning
15 context and the local plan-making tradition. For example, Stevens (2013) revealed in an
16 evaluation of Canadian local plans that newer plans tend to have a higher quality than older
17 ones. In fact, they are more likely to be at the forefront of best practices and to tackle current
18 issues such as sustainable urban development. Studies have also reported that local plans tend
19 to be of higher quality in municipalities that possess well-qualified planning staff helping
20 targeting the plans to the specific needs of the communities (Loh & Norton, 2015; Norton,
21 2005a). In addition, several research efforts have highlighted that the recourse to private
22 planning consultants fosters the development of strong local plans by providing specialized
23 expertise and experience (Bunnell & Jepson, 2011; Loh & Norton, 2015; Stevens, 2013).
24 Furthermore, Norton (2005a) noticed in his assessment of local plans in North Carolina that
25 local political commitment towards planning was a key prerequisite for the development of
26 strong plans. In parallel to these local factors, the presence of national or subnational planning
27 mandates has also been identified as affecting plan quality. However, the impact of planning
28 mandates on local plans is contested among scholars. Empirical studies about natural hazard
29 mitigation and planning for affordable housing have demonstrated that mandates overcome
30 local political opposition to planning and thereby encourage municipalities to plan for issues
31 they would not tackle without mandates (Berke, Roenigk, Kaiser, & Burby, 1996; Hoch, 2007). A
32 research project carried out in five US states at the beginning of the 1990s clearly showed that
33 state mandates increase the quality of local plans for natural hazard mitigation (Burby et al.,
34 1993; Dalton & Burby, 1994). Conroy and Berke (2004) further explored the topic by analysing
35 42 plans across the United States, and showed that mandates can improve the quality of
36 sustainable development policy focus. In addition, it is argued that planning processes leading to
37 the development of local plans can trigger local discussion and support the creation of a
38 common vision for future development among stakeholders (Gilgen, 2012). However, empirical
39 studies have also shown that mandates might lower local enthusiasm for planning and yield
40 plans that only comply to minimal legal requirements (Berke, Cooper, Aminto, Grabich, &
41 Horney, 2014; Hoch, 2007). A study by Bunnell and Jepson (2011) on the communicative and
42 persuasive qualities of plans in four US states even found that planning mandates can have a
43 negative impact on their creativity and originality. In line with these mixed opinions, the reasons
44 that prompt governments to impose planning mandates remain unclear.

45 The study designs employed by previous research may have often been too narrow to
46 uncover why some governments impose mandates while others do not. Most previous
47 investigations have relied on plan content analysis (Berke, et al., 2014; Berke, et al., 1996;
48 Bunnell & Jepson Jr, 2011) or a combination of plan content analysis and phone interviews with

1 local officials (Conroy & Berke, 2004; Hoch, 2007) to study planning mandates and their impact
2 on local plans. With the exception of the studies by Burby et al. (1993) and Dalton and Burby
3 (1994), there have been few attempts to adopt more integrative research approaches. Multi-
4 method study designs can provide valuable insights because they can combine quantitative and
5 qualitative methods and integrate expert assessment with planners' knowledge. In addition, the
6 integration of different analytical techniques makes it possible to compensate for the limitations
7 of single methods and conveys a more comprehensive picture than either would alone (Morse,
8 2003). For example, interviews with officials can help uncover the reasons that drive the
9 enactment of mandates, while plan content analysis and questionnaires can provide quantitative
10 results regarding the impact of mandates on plan quality and policy implementation.

11 There is a high level of agreement with respect to how to measure the quality of plans
12 (Lyles & Stevens, 2014). Regarding plan quality evaluation, Norton (2008) emphasizes that one
13 should distinguish between plans' policy focus and their formal quality. Policy focus relates to
14 their policy message, and previous research efforts have examined the ability of plans to foster
15 sustainable development (Berke & Conroy, 2000; Conroy & Berke, 2004) and smart growth
16 (Edwards & Haines, 2007), or manage urban growth and sprawl (Brody, Carrasco, & Highfield,
17 2006; Norton, 2005b, 2008). Formal quality refers to how the policy message is conveyed,
18 documented and justified. A recent plan quality evaluation by Stevens (2013) has, based on
19 previous work from Berke and colleagues (Berke, Godschalk, & Kaiser, 2006), identified the
20 following eight dimensions of plan formal quality. The *fact base* provides a description of the
21 municipality's actual conditions, while *goals* describe how the municipality plans to develop in
22 future. *Implementation* and *monitoring* contain provisions regarding to how the plan's policies
23 should be implemented—and respectively evaluated—to reach the municipality's goals. The
24 *interorganizational coordination* entails provisions related to how policies should be
25 coordinated with other plans or organizations. Finally, *participation* describes the public
26 participation process set up during the plan's development, while *organization and presentation*
27 evaluates the plan's user-friendliness. Based on these dimensions, Stevens, Lyles and Berke
28 (2014) have suggested standardized criteria for plan quality evaluation, which form the starting
29 point for our assessment.

30 Despite considerable research on plan evaluation (Guyadeen & Seasons, 2016), most
31 efforts to evaluate the quality of local plans and the impact of planning mandates have focused
32 on the United States. In their meta-analysis of more than 40 plan quality studies, Lyles and
33 colleagues (2014) listed only eight such studies conducted outside the United States, i.e., in New-
34 Zealand, Canada, Australia, the United Kingdom and the Netherlands. In Europe, research has
35 focused rather on the evaluation of cantonal comprehensive plans (Mueller & Hersperger, 2015)
36 or strategic spatial plans (Abis & Garau, 2016), and more generally on conceptual issues of
37 planning evaluation (De Montis, 2016; Faludi, 2000; Oliveira & Pinho, 2009; Soria & Valenzuela,
38 2013).

39 Even less effort has been put into investigating whether mandates have an impact on
40 policy implementation, even in the United States. For example, while Burby et al. (1993)
41 compared hazard mitigation plans in US states with and without mandates and demonstrated
42 that a high proportion of policies were implemented, they did not pursue their analysis to assess
43 whether implementation was higher in states with mandates than without. In general, the
44 relationship between planning mandates, plan quality, and policy implementation remains
45 under-researched.

46 To contribute to our understanding of the impact of planning mandates on local plans,
47 the present study focuses on Switzerland—a federalist country where several cantonal

governments (analogous to state-level in the US) mandate or enable local plans—and compares mandated and voluntary planning. We consider that a federalist country is good ground for studying the impact of planning mandates as it facilitates the comparison of local planning under different cantonal legislations. We apply a multi-method approach, combining interviews with planning officers at the cantonal-level, content analysis of planning documents, and questionnaires addressed to local officials, to study the impact of mandates on Swiss local plans. Specifically we address: (1) why some cantons mandate local plans while others rely on voluntary planning and only enable them, and how cantonal officials assess benefits and drawbacks of such mandates; and (2) the impact of cantonal mandates on the policy focus and the formal quality of local plans, and on the implementation of their policies. The policy focus of interest is sustainable spatial development, with an emphasis on compact urban development, landscape preservation and encouragement of low-impact mobility.

The sections of the present paper are organized as follows. Section two briefly introduces the specificities of the Swiss planning system. Section three describes the study area and details the study design and methods, while section four presents the results. Finally, section five discusses the main findings and suggests recommendations for science and practice, while section six summarizes the main conclusions.

2. Spatial planning in Switzerland

Switzerland is a federalist country organized into 26 cantons spanning over four linguistic regions (i.e., German, French, Italian, and Romansh). The Swiss planning system shares common characteristics with other federalist countries, such as Germany or Austria, whereby planning unfolds both top-down and bottom-up. In this manner, federal, cantonal, and local governments have distinct responsibilities but are jointly responsible for spatial planning (Newman & Thornley, 1996). Consensus building is therefore at the core of Swiss planning, unlike in the US planning system, which is characterized by a less structured planning framework and greater criticism towards state intervention (Schmidt & Buehler, 2007). In Switzerland, cantons have considerable autonomy and make provisions regarding land-use planning which is usually delegated to local governments (VLP-ASPAN, 2012). All municipalities are required to develop a Land Use Plan (*Nutzungsplan*) binding to landowners, but cantonal authorities have full authority to decide whether they require municipalities to develop a local plan (*Richtplan*), whether they rely on voluntary planning and only enable local plans, or whether they do not regulate this issue at all. In this regard, Swiss legislation reflects the US situation, where about half of the states do not mandate local plans, but only enable local governments to develop them (Pendall, 2001).

3. Research design and methods

3.1. Study area

To ensure consistency of terminology, we restricted the study to the German-speaking cantons of Switzerland. We further excluded cantons that do not explicitly require or enable the development of local plans, promote other instruments to steer local planning, or were not willing to cooperate in the study. As a result, we selected 11 cantons whose legislation either mandates (Glarus, Nidwalden, St.Gallen, Thurgau, Zug, and Zürich) or enables (Bern, Basel-

Landschaft, Basel-Stadt, Schwyz, and Aargau) the development of local plans (Fig. 1, in grey). This area covers 14,771 km², entails 1,046 municipalities and has a population of 4,634,144 inhabitants (57% of total Swiss population – BFS, 2014). The geographical and socio-economic characteristics of the selected cantons vary from small and densely populated urban cantons (e.g., Basel-Stadt with three municipalities and a population density of 5,080 inhabitants/km² over 37 km²), to large cantons spreading over rural and mountainous regions (e.g., Bern, with 362 municipalities and a population density of 170 inhabitants/km² over 5,960 km²).

The distribution of local plans in the study area was assessed in a large-scale survey of local planning instruments conducted in 2014 by Kaiser et al. (2016). This study clearly showed that cantonal mandates increase the development of local plans. In cantons with planning mandates, the proportion of municipalities that had a local plan in place varied from 75% (Zürich) to 100% (Glarus and Zug). In contrast, this proportion ranged from 15% (Basel-Landschaft) to 60% (Schwyz) for cantons without a mandate, with the exception of Basel-Stadt where all three municipalities have developed a local plan, even though they are not required to. The survey further indicated that municipalities with a high number of inhabitants developed local plans more often than their smaller counterparts, and that the use of local plans has constantly increased since the 1970s. In the study area, most mandates were imposed shortly after the introduction of the Federal Law on Spatial Planning at the beginning of the 1980s. The last planning mandate (i.e., Glarus) was enacted in 2010.

[Figure 1]

3.2. Multi-method study design

To study the impact of cantonal mandates on local plans, we used a combination of interviews, plan content analysis, and questionnaires. Each approach aimed to tackle specific sub-questions and was conducted with a particular sampling strategy (Fig. 2). The different methods were used sequentially and final results were triangulated to obtain a comprehensive understanding of the impact of mandates and the reasons behind their enforcement.

[Figure 2]

3.3. Interviews with cantonal planning officers

We conducted semi-structured interviews with cantonal planning officers to explore why some cantons mandate local plans while others rely on voluntary planning and only enable them. Due to time constraint, we were not able to consider all eleven cantons in our analysis. We selected eight cantons for interview, in order to: (a) obtain a balanced sample between cantons with and without mandate and (b) to encompass a diversity of cantonal planning organization and legislations. One planning officer declined our invitation without explanation. As a result, we compared and contrasted the answers of planning officers from three cantons that mandate local plans (Thurgau, St-Gallen, Glarus) with those from four cantons that only enable them (Bern, Basel-Landschaft, Schwyz, Basel-Stadt).

The planning culture varies in several ways among the sampled cantons. In the three

cantons that mandate local plans and in two of the non-mandating ones (i.e., Basel-Landschaft, Schwyz) municipalities are obliged to tackle all aspects of a sustainable development in their local plans. Also, in these cantons, planning competencies are distributed between the cantonal and the local level. In the two remaining non-mandating cantons (i.e., Bern, Basel-Stadt), municipalities can choose to develop single-purpose plans limited to selected themes, and an additional institutional level is involved into planning. In fact, municipalities are grouped into planning regions that are required to develop a regional plan. However, some characteristics are shared among all cantons. Notably, none of them offers financial incentives or tailored professional training to build local know-how and commitment towards planning. Furthermore, cantonal legislations do not describe the precise content and the level of detail of the local plans, or entail strong enforcement mechanisms. Only Thurgau and Basel-Landschaft have edited informal guidelines to help municipalities in the development of their plans.

During the interviews, planning officers were first asked why their canton requires/does not require the development of local plans. Subsequently, they were asked to assess six statements regarding potential benefits and drawbacks of planning mandates that are either commonly found in the international literature, or we deemed as especially relevant to the Swiss context. Potential benefits relate to: (1) overcoming local opposition to planning (Berke, et al., 1996; Hoch, 2007), (2) encouraging the development of high quality plans (Burby, et al., 1993; Conroy & Berke, 2004; Dalton & Burby, 1994), (3) triggering local discussion and long-term decision-making (Gilgen, 2012). Conversely, potential drawbacks relate to: (1) lowering local enthusiasm for planning (Berke, et al., 2014; Hoch, 2007), imposing a high burden on municipalities (own suggestion given the high number of Swiss municipalities that are very small and have limited financial and planning capacity), and (3) lowering plan creativity and originality (Bunnell & Jepson Jr, 2011).

3.4. Content analysis of local plans

To select local plans from a broad range of municipalities, we applied stratified random sampling (Gregoire & Valentine, 2008). Two criteria, 1) presence or absence of a cantonal mandate, and 2) municipality population size (< 1,000 inhabitants; 1,000 – 4,999; 5,000 – 9,999; ≥ 10,000), yielded eight sampling strata. In each sampling stratum, we randomly selected four municipalities and requested their plans. Most plans were adopted after the year 2000, but some dated from the 1980s or 1990s (Appendix A) All but two of the plans were developed with the help of private planning consultants.

Based on a federal report (ARE, 2009) and previous work by Norton (2008), we defined 16 evaluation protocol items in three categories (compact urban development, landscape preservation, and encouragement of low-impact mobility) to describe the focus areas of sustainable spatial development (Appendix B). For the analysis of formal quality, we used Stevens's protocol (2013), with additions or adaptations (see Appendix C, column "Source" for more details) in order to better match the Swiss planning context and clearly distinguish between policy focus and formal quality. Our resulting protocol entailed seven dimensions of formal quality measured in 36 items (Appendix C).

Prior to the actual analysis, two coders were trained and a draft protocol was tested on five local plans not included in the present study and subsequently refined. Each protocol item was coded either with a 1, meaning that the item was present, or a 0, indicating the item was not present. The two coders independently analysed the plans. We subsequently determined the coding reliability by calculating Krippendorff's alpha (Krippendorff, 2013) and following the

procedure recommended by Stevens, Lyles and Berke (2014) to decide which items were sufficiently reliable to be included in the final analysis. Specifically, plan quality dimensions were classified depending on (1) the number of items included in each dimension, and (2) the degree to which the items were distributed throughout the plans. Lower and upper standards of alpha scores were then defined (Appendix D). For items with alpha scores above upper standards, differences among coders were reconciled and the items were included in subsequent analyses. For items with alpha scores between upper and lower standards, differences among coders were reconciled based on a reassessment of the protocol. Items with alpha scores below lower standards were dropped from subsequent analyses unless they were deemed crucial for the study. In this case, differences among coders were reconciled based on a reassessment of the protocol.

We used a standardization process to enable the comparison between the dimensions of policy focus and formal quality. For each plan and dimension, we totalled the number of items present, divided the sum by the number of items in the dimension and multiplied the number by 100 to obtain index scores ranging from 0 to 100.

Two sample t-tests were then performed to assess the impact of cantonal planning mandates on policy focus and formal quality (Albert & Rizzo, 2012), by comparing scores between mandating and non-mandating cantons (i.e., cantons relying on voluntary planning and thus only enabling local plans). Since variables were non-normally distributed, we performed a sensitivity analysis by using a Mann-Whitney U test that yielded the same conclusions as the t-tests (Conover, 1999).

3.5. Questionnaires on policy implementation

To study whether policies were implemented more effectively in cantons that mandate local plans than in cantons that only enable them, we sent a questionnaire to the main planning officers of the 32 municipalities, addressing two aspects of implementation. Planning officers were asked to estimate the proportion of policies they expected to be implemented before the end of their plan's lifespan (i.e., on a scale from 0 to 100%), and how often the progress of implementation was assessed (i.e., never, seldom, occasionally or continuously). In total, 29 questionnaires were returned, for a response rate of 91%. We used Fisher's exact tests to measure the impact of mandates on these two parameters, because the contingency tables contained cells with low expected frequencies (Agresti, 2013). The tests were performed with the function *fisher.test* in the R *stats* package (R Core Team, 2016), which makes it possible to adapt the algorithm to large contingency tables, based on the work of Mehta and Patel (1986) and Clarkson, Fan & Joe (1993).

4. Results

4.1. Reasons for mandating local plans

Interviews with cantonal planning officers revealed that cantons have distinct reasons for passing legislation mandating or only enabling local plans. Among cantons with planning mandates, planning officers from Thurgau and St. Gallen highlighted the goal of promoting local long-term strategic planning, since municipal governments are more aware of the specificities of and challenges faced by their communities than regional or cantonal planning authorities.

Furthermore, they stressed that local plans were beneficial to all municipalities, even those with low rates of urban growth, since they encourage local actors to include diverse issues (e.g., landscape protection, nearby recreation, public finances) when reflecting on future development. In the third canton that mandates local plans (Glarus), the mandate was actively promoted by the main planning officer on the occasion of a large municipal merger in 2010, when 25 municipalities were merged into three large municipalities. In this case, the mandate was expected to empower the newly formed municipalities to develop a culture of long-term strategic planning over geographically and economically heterogeneous areas.

In the four cantons that only enable local plans, most planning officers did not precisely know why cantonal authorities had only enabled local plans. In any case, the balance of power between local and cantonal governance levels appears to have played an important role. This was explicitly confirmed for Schwyz, where the planning officer declared that cantonal authorities were reluctant to reduce the traditionally high level of planning autonomy in the municipalities. He also stated that local plans would not be relevant for the numerous municipalities in his canton that are situated in mountainous regions, have few inhabitants and experience low rates of urban development.

While planning officers provided various reasons justifying why cantonal governments may or may not pass legislation mandating local plans, they generally agreed on the potential benefits and drawbacks of planning mandates. Their opinions regarding the six suggested statements are summarized in Table 1. Interestingly, there appears to be no major difference between planning officers from mandating and non-mandating cantons. All agreed that cantonal mandates can overcome local political opposition to planning and can assure that all municipalities engage in a long-term planning process. Many agreed that mandates trigger local discussions and enable the development of a common vision to guide long-term decision-making. In this regard, interviewees often perceived the planning process leading to the development of a local plan as being as valuable as the plan itself since it facilitates the identification and coordination of divergent planning interests. In contrast, in the opinion of planning officials, mandates do not encourage the development of higher quality plans because most mandates do not entail detailed provisions. Rather, planning officers claimed that plans' overall quality mainly depends on local political will, and that open and constructive discussion between cantonal and local authorities is more important than mandates towards ensuring that plans are of high quality.

[Table 1]

Regarding the potential drawbacks of planning mandates, planning officers' opinions were more mixed. This was especially true concerning the tendency of mandates to lower local enthusiasm for planning. Most interviewees acknowledged that the obligation to develop a local plan imposes a burden on municipalities. However, planning officers made a distinction between financial and administrative burdens. Overall, they highlighted that, while most local authorities can rely on the expert knowledge of private planning consultants, they often lack financial and in-house planning capacity to precisely tailor the planning process to the needs of their community. Finally, most planning officers clearly denied that mandates lower planning creativity and originality. Instead, they reported that local plans tend to be similar because of municipalities' limited financial capacity, and because of their lack of interest in planning. Consequently, private planning consultants are prompted to use templates and deliver standardized plans.

4.2. Impact of mandates on policy focus and formal quality

Overall, robust results were achieved, as evidenced by the large proportion of alpha scores that indicate a high level of agreement among coders. Only item 1.2.4 was dropped from the analysis since it overlapped with item 1.2.1 (Appendix B). All other items with low alpha scores were deemed important for subsequent analyses and were reassessed and reconciled. The proportion of protocol items that required a reassessment reached ca. 20% regarding plans' policy focus (Appendix B), and ca. 30% regarding their formal quality (Appendix C). Differences in item scores among coders were mainly due to imprecisions in the protocol. For instance, in the case of item 2.6.5. ("Is there an explanation of the participation techniques that were used"), it was not specified whether participation techniques had to be described in detail or only named.

Mandates were found to improve the policy focus of local plans in regard to some aspects of sustainable urban development (Table 2). Local plans in mandating cantons entailed significantly more provisions related to compact urban development (mean score = 69.6) and landscape preservation (mean score = 68.8) than plans in non-mandating cantons (mean score of 39.2 for compact urban development and 37.5 for landscape preservation). However, mandates had no significant impact on the content of local plans regarding low-impact mobility. Overall, mandates were found to encourage the development of local plans that are comprehensive and tackle all three aspects of a sustainable urban development. Local plans reached a score of approximately 70 on all three indicators in cantons with mandates compared to those without, which only scored relatively high on low-impact mobility (65.6). These results suggest that municipalities tend to focus on selected topics and fail to coordinate a wide range of goals if they are not required to do so. Results also reveal that Swiss municipalities pay particular attention to low-impact mobility.

[Table 2]

Mandates did not show any significant impact on the formal quality of local plans (Table 3). Whether mandates were in place or not, local plans scored highest on the dimension *interorganizational coordination*, with average scores on the dimensions *goals* and *implementation*, and low scores on the dimensions *fact base*, *monitoring and evaluation*, *public participation*, and *organization and participation*. These results indicate that municipalities acknowledge that they must coordinate their actions with other municipal, regional and cantonal activities to realize the goals stated in their local plans. However, development goals are less precisely detailed, and local plans often lack clear provisions regarding the practical implementation of policies. In addition, municipalities' geographical, socio-economic and land-use conditions are generally insufficiently described. The same applies to the description of the public participation process that led to the plan's development. Finally, most local plans are not presented and organized so as to be easily accessible to a broad audience, and they generally lack any indications regarding the plan's long-term monitoring and evaluation.

[Table 3]

4.3. Impact of mandates on policy implementation

Mandates did not have a significant impact on the proportion of policies likely to be implemented (Fig. 3 A), or on the assessment of their implementation progress (Fig. 3 B), as confirmed by t-tests ($p = 0.98$ for policies' implementation, and $p \approx 1$ for the assessment of plans' policies implementation). Regardless of whether mandates exist, most local planning officers (ca. 35%) expected that about half of their plan's policies (41 - 60%) would be implemented before the end of the plan's lifespan. Policy implementation progress was assessed occasionally (ca. 35%) or seldom (ca. 30%). Continuous assessment took place in municipalities with and without mandates (ca. 25%).

[Figure 3]

5. Discussion

5.1. Impact of mandates on local plans and on policy implementation

Overall, mandates had a limited impact on local plans and on the implementation of their policies in the study area. In particular, plans developed under cantonal mandates did not exhibit higher formal quality than those developed voluntarily. In both cases, local plans were rarely written and designed so as to be user-friendly and accessible to a broad audience. The main geographical, natural and socio-economic features of the municipalities in question were often succinctly described which, in turn, may have affected their ability to foster and communicate a strong sense of place. Furthermore, development goals were reported in very technical terms. Consequently, most plans did not entail a unifying storyline to inspire and encourage local action. Inspirational and imaginative plans are however key elements to facilitate the bridging of divergent attitudes and beliefs, and to strengthen local commitment towards common goals (e.g., Berke, et al., 2006; Bunnell & Jepson Jr, 2011). In addition, the examined local plans often lacked clear implementation and monitoring provisions, irrespective of whether they were mandated or not. For example, many plans did not specify which organizations were responsible for policy implementation, did not entail cost estimations and did not contain any indications regarding plan monitoring. These omissions are worth noticing because "implementation and monitoring measures are critical for ensuring that plan policies are actually applied to municipal decisions in the intended manner in order to achieve plan goals [...]" (Stevens, 2013, p. 483).

Our observations are in line with other recent findings. For example, Lyles and colleagues (2014) reported that mandates had only a very limited impact on the quality of hazard mitigation plans in the United States, and Bunnell and Jepson (2011) determined that mandates may even decrease the persuasiveness and communicative quality of plans. Many earlier studies, however, report the contrasting conclusions. For instance, Berke and French (Berke & French, 1994) and Burby et al. (Burby, et al., 1993) found that mandated plans addressed hazard mitigation better. These contradictions may result in part from the characteristics of the planning mandates under study. Berke and French (1994) and Burby et al. (1993) studied mandates with precise requirements and strong enforcement mechanisms. In contrast, in our sample most cantonal mandates did not entail detailed provisions regarding the content of local plans such that municipalities did not have much guidance and incentives to develop high quality plans.

1 The lack of strong enforcement requirements may also explain why municipalities in
2 mandating cantons did not implement policies more consistently or assess their implementation
3 progress more often than municipalities in non-mandating cantons. Plan implementation
4 success is, however, not limited to measuring the proportion of implemented policies, but also
5 implies assessing whether plans guide local decisions (Lyles, Berke, & Smith, 2016). This aspect
6 was not tackled in the present study but should be addressed in future research to broaden our
7 understanding of the impact of government mandates on policy implementation.

8 Finally, the impact of mandates on the policy focus of local plans proved to be quite
9 complex. Plans developed under a mandate entailed more policies to foster compact urban
10 development and landscape preservation than in plans developed voluntarily. In non-mandating
11 cantons, municipalities tended to restrict the scope of their plans to specific topics, in particular
12 to the promotion of low-impact mobility. Political commitment to this issue may be high because
13 traffic-reducing measures and actions to promote human-powered mobility have a clear and
14 direct impact on the daily life of local communities. Furthermore, they are relatively
15 straightforward to implement and can often be realized during the term of elected officials. The
16 fact that compact urban development and landscape preservation were better addressed in
17 mandating cantons reveals that mandates strengthen policy focus for sustainable spatial
18 development, and support similar conclusions drawn in the context of sustainable development
19 (Conroy & Berke, 2004) and hazard mitigation (Burby & May, 1997). However, these
20 conclusions need to be put into perspective in light of the variety of cantonal legislation in the
21 study area. In three of the non-mandating cantons (i.e., Basel-Landschaft, Basel-Stadt and
22 Schwyz), municipalities are obliged to tackle all aspects of sustainable spatial development if
23 they choose to develop a plan. Consequently, the policy focus of their local plans was comparable
24 to that indicated by scores observed in mandating cantons. Had we restricted our sample to
25 these cantons, we would likely have found no difference between mandated and voluntary
26 planning. Conversely, municipalities in the two remaining non-mandating cantons (i.e., Bern and
27 Aargau) have the option to develop single-purpose plans. For this reason, many local plans in
28 our sample of non-mandating cantons focused on transportation or landscape protection. This
29 explains, in part, why non-mandating cantons were found to produce plans with a narrower
30 policy focus. In reality, the impact of cantonal mandates is less clear-cut, and the characteristics
31 of the planning legislation seem to play a key role in explaining planning outcomes in non-
32 mandating cantons.

33 ***5.2. Reasons for adopting cantonal mandates for local plans***

34 Clearly, there is no strict rule to explain why cantons impose planning mandates or rely on
35 voluntary planning. According to the interviews, the decision to mandate or only enable local
36 plans depends ultimately on the geographical, economic and political context of the cantons, and
37 on the balance of power between cantonal and local governments.

38 Three main aspects shaped cantons' decisions to mandate or enable local plans in the
39 study area. Generally, cantonal governments were willing to promote long-term strategic
40 planning at the local scale because many issues—such as landscape protection, traffic mitigation,
41 settlement densification or finance planning—are relevant to most municipalities and are
42 efficiently coordinated in the context of a local plan. However, cantonal governments were
43 reluctant to restrict the high level of planning autonomy traditionally granted to municipalities.
44 Finally, cantonal governments saw less need for a mandate if regional planning structures were
45 already present (Gilgen, 2012). In the canton of Bern, for example, the 362 municipalities are
46 grouped into planning regions that share common geographical and economical characteristics,

1 and each region is required to develop a regional plan. As a result, many planning issues are
2 already coordinated at this regional scale, and municipalities are not required to prepare local
3 plans. In contrast, the cantons of Thurgau and St. Gallen do not rely on strong regional planning
4 structures and favour local plans instead.

5 Interviews with cantonal officials also suggested that local planning commitment plays a
6 key role in determining the relevance and the success of mandates. For example, the three
7 municipalities of Basel-Stadt all prepared local plans even though they were not required to.
8 They have traditionally had very limited planning autonomy because of their position within the
9 international agglomeration of Basel (owing to its location near the French and German
10 borders). For this reason, they have been strongly committed to planning once they were
11 granted permission to develop their own local plans. Conversely, canton officials reported that a
12 lack of local planning interest often results in low-quality plans, even when plans are mandated.
13 Norton (2005a) studied this issue in detail in the context of a mandate for coastal resource
14 protection in North Carolina, USA, and showed that the mandate failed to reach its goals because
15 it did not build local commitment. Earlier research efforts have also concluded that governments
16 mandating local plans should build local commitment and planning capacity through funding,
17 technical assistance, guidelines and promotion activities (e.g., Berke & French, 1994; Burby, et
18 al., 1993).

19 Building local commitment and planning capacity requires significant resources and
20 commitment on the part of government planning agencies. While resources might be sufficient
21 in cantons with a limited number of municipalities, it is not necessarily the case in larger
22 cantons. A comparison between Glarus and St. Gallen—which both mandate local plans—
23 provides a good illustration. The canton of Glarus imposed a mandate for local plans in 2010,
24 and its three municipalities had developed and enforced a plan by mid-2016. The cantonal
25 planning official reported that he personally supervised the development of the local plans,
26 attended numerous local planning meetings and supported local authorities throughout the
27 planning process. Instead, the canton of St. Gallen has 77 municipalities and has been mandating
28 local plans for more than 20 years. However, a number of municipalities still had no local plan in
29 place by 2016, and some others had not amended their plans since the 1980s or 1990s. Of
30 course, the differences in these two cantons may be explained, in part, by the fact that many
31 municipalities in St. Gallen are smaller and have less planning capacity than those in Glarus.
32 However, this may also indicate that mandates are easier to administer if they concentrate
33 cantonal planning capacity towards a restricted number of municipalities.

34 In light of the observations gained through the interviews, we question the pertinence of
35 imposing cantonal-wide mandates without providing planning agencies with appropriate
36 resources to build local commitment and planning capacity. Previous research has already
37 shown that mandates tend to generate weak plans if they are not properly funded and
38 administered (Hoch, 2007), and that voluntary planning may be a viable alternative to planning
39 mandates—as long as municipal governments are offered strong incentives and technical
40 assistance (Pendall, 2001). However, our study did not specifically assess the influence of
41 mandate characteristics (e.g., in terms of technical assistance from governmental agency,
42 financial incentives) on local plans. Consequently, our analysis does not allow concluding
43 whether mandates showed little impact on the quality of local plans because (a) planning
44 mandates from national or subnational governments are ineffective in general, or (b) Swiss
45 cantonal mandates in particular entail too few requirements and enforcement mechanisms to
46 show a clear effect. Future studies could explore this issue empirically by setting up a more
47 systematic within and across case analysis to compare the impact of different cantonal planning
48 mandates on the quality of local plans.

5.3. Implications for planning practice

Plan quality, and especially formal quality, is an ongoing matter of discussion. In fact, local plans may have different purposes, and may therefore require different dimensions of quality (Baer, 1997; Lyles, et al., 2016). For example, if a plan is intended to provide a vision for the future development of a municipality, it should precisely describe long-term planning goals. In contrast, if a plan should rather act as a blueprint to steer political decisions, it should most importantly entail specific implementation provisions. The protocol developed by Stevens (2013) and adapted in this study (Appendix C) allows to measure formal quality according to seven dimensions. Accordingly, it grants freedom to determine what should be considered as crucial plan quality aspects.

As general guidance, however, the present analysis suggests that cantonal governments could provide municipalities with clearer guidelines regarding the content of their plans, irrespective of whether they mandate or only enable them. In particular, they could encourage municipalities to describe their situation and specificities better in order to strengthen a sense of place and foster strong commitment towards community goals. In addition, municipalities could be incited to include detailed implementation provisions for each proposed policy and assemble them into an action plan, as illustrated in Stevens (2013). In parallel, cantonal governments could possibly strengthen local commitment and capacity building through educational efforts, increased public participation, financial incentives and technical assistance. As highlighted by Lyles, Berke and Smith (2014), cantonal planning authorities could also select cutting-edge local plans to provide examples of best practice.

It should be noted that such accompanying measures are costly and demand increased planning capacity on the part of planning agencies. Depending on the number of municipalities, it might therefore prove difficult and counterproductive to impose canton-wide mandates. Consequently, it may be needed to concentrate efforts on priority areas and restrict the number of municipalities subjected to mandate planning, in order to foster the development of high quality local plans where they are most needed. This implies finding a middle way between mandated and voluntary planning. As an example, the canton of Bern has recently imposed a new single-purpose mandate for energy planning, which is only directed at municipalities that are highly populated or experience rapid urban development.

5.4. Methodological aspects and future research

The multi-method approach applied in the present study proved to be especially useful for analysing the impact of government mandates on local plans because it included expert assessment and planning officers' expertise, both at local and cantonal levels. It facilitated fruitful discussion about the pertinence of mandated and voluntary planning, which went beyond the analysis of policy focus, formal quality and implementation. However, as this approach was time-consuming and required polyvalent operators with in-depth knowledge of different analytical techniques, its applicability to further research may be limited. In any case, the protocol and procedure developed by Stevens and colleagues to study local plans in North America (Stevens, 2013; Stevens, et al., 2014) were very useful and were easily applied to the Swiss planning context.

We acknowledge that some methodological aspects warrant discussion to help generalize findings and guide future studies. Even though our results are rather clear, the

analysis of additional Swiss local plans may be useful towards confirming and expanding the present findings. In addition, it is possible that plan quality is slightly overestimated in our sample because local officials' willingness to grant us access was influenced by their belief their plans were of good quality. Furthermore, our conclusions may not be limited to planning mandates for sustainable spatial development, but also apply to other policy areas requiring coordination between cantons and municipalities, such as energy efficiency and environmental protection. Further research could tackle this issue. Finally, we recommend that future studies explore the suggested strategy of a middle way between mandated and voluntary planning.

6. Conclusion

Planning mandates for local plans are valuable instruments to coordinate planning between cantons and municipalities, but often fail to yield expected policy outcomes. We used a multi-method approach to study and compare the effects of mandated and voluntary planning on Swiss local plans. Results showed limited evidence that mandates increase policy focus, formal quality or the implementation of local plans compared to voluntary planning. To remedy this situation, cantons could provide more guidance when imposing planning mandates. Where limited cantonal planning capacity is an issue, we suggest adapting mandates to the local context and finding a compromise between mandated and voluntary planning. More research is needed to understand how to carefully allocate resources and to design stipulations to support the development of high quality plans in the most relevant and vulnerable locations.

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FIGURES AND TABLES (IN THE SEQUENCE OF APPEARANCE)

Fig. 1. Study area, and identification of cantons with and without mandates for local plans. Cantons without mandates rely on voluntary planning and enable local plans instead of requiring them.

Fig. 2. Description of the multi-method approach, the specific sampling strategies and the research questions.

Table 1. Opinions of the seven cantonal planning officers regarding potential benefits and drawbacks of mandates for local plans. The following symbols identify the orientation of planners' opinions: (+) indicates general agreement with the statement, (-) indicates general disagreement with the statement, (+/-) indicates partial agreement with the statement, and (•) indicates no particular opinion.

CANTON	MANDATE	POTENTIAL BENEFITS			POTENTIAL DRAWBACKS		
		OVERCOME LOCAL POLITICAL OPPOSITION TO PLANNING	ENCOURAGE THE DEVELOP- MENT OF HIGH QUALITY PLANS	TRIGGER LOCAL DISCUSSION AND LONG- TERM DECISION- MAKING	LOWER LOCAL ENTHUSIASM FOR PLANNING	IMPOSE A BURDEN ON MUNICIPALITIES	LOWER PLANS' CREATIVITY AND ORIGINALITY
THURGAU	YES	+	-	+/-	+/-	+/-	-
ST. GALLEN	YES	+	-	+	•	+/-	-
GLARUS	YES	+	-	+	-	+	-
BERN	No	+	+/-	+	+	+/-	-
SCHWYZ	No	+	-	+	•	+	-
BASEL- STADT	No	+	•	+	-	+/-	-
BASEL- LANDSCHAFT	No	+	•	+	•	-	+

Table 2. Policy focus scores of local plans in cantons with and without mandates.

Policy focus	Mean scores		Test statistic	
	Mandate	No mandate	t	p-value
Compact urban development	69.6	39.2	-3.02	0.005*
Landscape preservation	68.8	37.5	-2.60	0.014*
Low-impact mobility	70.3	65.6	-0.47	0.640
Overall score	69.6	45.9	-2.56	0.016*

*statistically significant

Table 3. Formal quality scores of local plans in cantons with and without mandates.

Formal quality	Mean scores		Test statistic	
	Mandate	No mandate	t	p-value
Fact base	42.0	35.2	-0.67	0.50
Goals	53.1	66.7	1.16	0.26
Implementation	54.2	50.0	-0.46	0.65
Monitoring	25.0	35.6	0.97	0.34
Interorganizational coordination	90.6	82.2	-1.13	0.27
Participation	48.8	38.7	-0.87	0.39
Organization and presentation	40.2	49.5	1.29	0.20
Overall score	51.9	50.6	-0.20	0.84

Fig. 3. (A) Proportion of policies likely to be implemented and (B) frequency of assessing implementation progress in cantons with and without mandates.

Appendix A: Results of the content analysis for the individual plans

Municipality	Planning mandate	Canton	Population	Plan adoption	Policy focus				Formal quality							
					Compact urban development	Landscape preservation	Low-impact mobility	Overall score	Fact base	Goals	Implementation	Monitoring	Inter. coord.	Participation	Organization and presentation	Overall score
M1	Yes	St. Gallen	74581	2012	100	100	100	100	14.3	0	50	66.7	83.3	60	57.1	50
M2	Yes	St. Gallen	26542	2010	100	100	100	100	14.3	50	83.3	33.3	100	0	14.3	41.7
M3	Yes	Zürich	25801	1996	71	75	100	80	14.3	0	16.7	0	100	20	42.9	33.3
M4	Yes	St. Gallen	12698	2010	86	100	75	87	100	100	50	0	100	100	57.1	75
M5	Yes	Glarus	9836	2014	100	100	75	93	71.4	100	50	66.7	100	60	57.1	69.4
M6	Yes	St. Gallen	6144	2010	100	100	75	93	85.7	100	100	33.3	100	100	57.1	83.3
M7	Yes	Zug	5828	2008	71	75	75	73	85.7	50	33.3	66.7	100	80	71.4	72.2
M8	Yes	Thurgau	5086	2011	71	100	75	80	28.6	50	50	33.3	100	40	42.9	50
M9	Yes	St. Gallen	4541	2011	86	75	100	87	57.1	100	66.7	33.3	100	60	28.6	61.1
M10	Yes	St. Gallen	3483	2005	57	25	25	40	42.9	0	33.3	0	50	0	42.9	30.6
M11	Yes	Nidwalden	3110	2011	86	75	100	87	57.1	50	66.7	0	100	40	14.3	50
M12	Yes	Thurgau	1941	1993	43	25	75	47	28.6	50	50	0	83.3	20	28.6	38.9
M13	Yes	Zürich	886	1983	29	25	25	27	14.3	50	33.3	33.3	66.7	80	28.6	41.7
M14	Yes	Zürich	756	2011	57	50	50	53	14.3	50	66.7	0	100	80	57.1	55.6
M15	Yes	Thurgau	621	1994	43	25	25	33	14.3	50	100	33.3	83.3	20	14.3	44.4
M16	Yes	Thurgau	507	1994	14	50	50	33	28.6	50	16.7	0	83.3	20	28.6	33.3
NM1	No	Basel-Stadt	20799	2014	86	75	100	87	14.3	50	33.3	0	100	60	57.1	47.2

NM2	No	Basel-Landschaft	18839	2005	71	75	75	73	14.3	100	50	100	100	40	85.7	63.9
NM3	No	Schwyz	14785	2014	100	100	75	93	71.4	100	83.3	100	100	80	85.7	86.1
NM4	No	Bern	11651	2010	57	100	100	80	42.9	100	75	33.3	100	40	78.6	66.7
NM5	No	Schwyz	8126	2003	57	25	75	53	57.1	100	83.3	33.3	100	80	57.1	72.2
NM6	No	Aargau	7407	2007	14	0	75	27	14.3	050	33.3	33.3	83.3	60	42.9	44.4
NM7	No	Schwyz	6585	2003	43	25	75	47	57.1	100	83.3	33.3	100	80	57.1	72.2
NM8	No	Bern	6084	2008	28.6	50	33.3	83.3	28.6	50	50	33.3	83.3	40	71.4	52.8
NM9	No	Bern	4079	1990	43	0	25	27	14.3	50	16.7	0	50	0	28.6	22.2
NM10	No	Bern	2958	1996	14	50	50	33	42.9	50	50	33.3	83.3	0	28.6	41.7
NM11	No	Aargau	1399	2011	14	0	75	27	71.4	100	66.7	66.7	100	20	42.9	63.9
NM12	No	Basel-Stadt	1150	2004	57	50	75	60	14.3	50	33.3	0	100	60	57.1	47.2
NM13	No	Bern	900	2002	29	0	50	27	14.3	50	16.7	0	50	40	42.9	30.6
NM14	No	Aargau	845	2011	14	0	75	27	71.4	100	66.7	66.7	100	0	42.9	61.1
NM15	No	Bern	635	2012	14	0	0	7	0	0	16.7	0	16.7	20	0	8.3
NM16	No	Bern	471	2003	0	50	25	20	42.9	50	66.7	33.3	66.7	0	42.9	44.4

Appendix B: Protocol to assess the policy focus of local plans

Does the plan include policies to address the following issues?

	Source ^a	Alpha ^b	Decision ^c
<i>1.1. Compact urban development</i>			
1.1.1. Restrict the extension of the urban area	Own expertise	0.69	Reassess
1.1.2. Define the sequence in which building plots must be connected to public facilities and new buildings must be built (phased development requirements)	Own expertise	0.82	Reconcile
1.1.3. Secure high density and high quality of new development areas	Own expertise	1	Reconcile
1.1.4. Densify existing urban areas	Own expertise	0.94	Reconcile
1.1.5. Redevelop and increase the quality of the existing urban fabric	Own expertise	0.77	Reconcile
1.1.6. Encourage the development of mixed-use areas	Own expertise	0.89	Reconcile
1.1.7. Encourage social equity within urban areas	Own expertise	0.65	Reassess
<i>1.2. Landscape preservation</i>			
1.2.1. Protect valuable ecosystems, landscapes, species	Own expertise	0.8	Reconcile
1.2.2. Preserve fertile soils for agricultural uses	Own expertise	0.86	Reconcile
1.2.3. Create nearby recreational areas outside of the urban area, or increase the quality of existing ones	Own expertise	1	Reconcile
1.2.4. Environmental protection	Own expertise	0.54	Drop
1.2.5. Coordinate the transition between urban areas and open landscapes	Own expertise	0.78	Reconcile
<i>1.3. Low-impact mobility</i>			
1.3.1. Implement traffic reducing measures	Own expertise	0.81	Reconcile

1.3.2. Coordinate urban development with transport development	Own expertise	0.63	Reassess
1.3.3. Promote public transportation	Own expertise	1	Reconcile
1.3.4. Promote human-powered mobility	Own expertise	0.72	Reconcile

^aSource of protocol items; ^bValue of Krippendorff's alpha; ^cDecision regarding the reliability of protocol items: "reconcile" means that scores from both coders were simply reconciled to be included in the analysis; "reassess" means that the item had to be clarified and the scores reassessed before being reconciled and included in the analysis; "drop" means that the item was dropped from the final analysis.

Appendix C: Protocol to assess the formal quality of local plans

	Source ^a	Alpha ^b	Decision ^c
<i>2.1. Fact base</i>			
2.1.1. Does the plan include a separate section that precisely describes the municipality's general situation (e.g., topography, landscapes, economic development, urban development, public infrastructure)?	This study	0.54	Reconcile
2.1.2. Does the plan include, for the main planning issues, a detailed description of the	This study	0.49	Reconcile

municipality's general situation in this specific planning realm?			
2.1.3. Does the plan include, for most policies, a short description of the municipality's general situation regarding the specific issue?	This study	0.47	Reconcile
2.1.4. Does the plan include a description of the size of the present population?	Stevens, 2013	0.89	Reconcile
2.1.5. Does the plan include a description of the composition of the present population (e.g., broken down by age or gender) or a description of the present utilization of building zones?	Stevens, 2013	0.79	Reconcile
2.1.6. Does the plan include a description of the size of the future population?	Stevens, 2013	0.88	Reconcile
2.1.7. Does the plan include a description of the composition of the future population (e.g., broken down by age or gender) or a description of the future utilization of building zones?	Stevens, 2013	0.53	Reconcile
<i>2.2. Goals</i>			
2.2.1. Are the overall development/planning goals clearly identified?	This study	0.89	Reconcile
2.2.2. Are the specific goals of the policies clearly identified?	This study	0.94	Reconcile
<i>2.3. Implementation</i>			
2.3.1. Does the plan generally identify the specific organizations that are responsible for plan implementation?	Stevens, 2013	0.94	Reconcile
2.3.2. Does the plan specify for each policy whether it is ready for implementation, or whether more discussion is necessary?	This study	1	Reconcile
2.3.3. Are timelines for implementation generally specified?	Stevens, 2013	0.89	Reconcile
2.3.4. Are concrete policies generally presented along with cost estimations for their implementation?	This study	1	Reconcile
2.3.5. Does the plan contain at least one example of a conflict, or is it stated at least once that some actions have to be coordinated, weighted against another action or compensated for?	This study	0.36	Reassess

2.3.6. Does the plan contain at least one example of an action being prioritized over another?	Stevens, 2013	0.55	Reassess
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2.4. Monitoring

2.4.1. Are policies generally quantified based on measurable objectives and/or indicators?	Stevens, 2013	0.84	Reconcile
2.4.2. Does the plan contain a section or subsection that specifically addresses monitoring?	Stevens, 2013	0.94	Reconcile
2.4.3. Does the plan generally identify organizations with responsibility for monitoring?	Stevens, 2013	0.75	Reassess

2.5. Interorganizational coordination

2.5.1 Are the main planning documents and concepts of higher institutional levels at least briefly listed (e.g., cantonal comprehensive plan, concepts)?	This study	0.22	Reassess
2.5.2. Are the main planning documents and concepts of the municipality at least briefly listed (e.g., zoning plan, building ordinances)?	This study	0.31	Reassess
2.5.3. Are the main planning documents and concepts the local plan builds on described in detail, or is it precisely explained how the local plan conforms to these documents (independently of whether these documents come from higher institutional levels or from the municipality)?	This study	0.35	Reassess
2.5.4. Does the plan include at least one example of intergovernmental coordination (e.g., coordination with the canton)?	Stevens, 2013	0.72	Reconcile
2.5.5. Does the plan include at least one example of coordination within the municipality (e.g., with another local plan)?	Stevens, 2013	0.37	Reassess
2.5.6. Does the plan include at least one example of intercommunal coordination?	This study	0.31	Reassess

2.6. Participation

2.6.1. Are organizations and individuals that were involved in plan preparation identified?	Stevens, 2013	0.77	Reconcile
2.6.2. Are the different steps of the plan's development described?	This study	0.88	Reconcile
2.6.3. Does the plan include a separate section that describes the public participation process during the development of the plan?	Stevens, 2013	0.77	Reconcile
2.6.4. Was the broader population invited to participate in plan development already at the beginning of the planning process (e.g., workshops to set development goals in a participatory way)?	This study	0.40	Reassess
2.6.5. Is there an explanation of the participation techniques that were used?	Stevens, 2013	0.66	Reassess

2.7. Organization and presentation

2.7.1. Does the plan include an executive summary?	Stevens, 2013	1	Reconcile
2.7.2. Does the plan include a table of contents?	Stevens, 2013	0.75	Reconcile
2.7.3. Does the plan include a glossary of terms and definitions?	Stevens, 2013	1	Reconcile
2.7.4. Are illustrations used (e.g., diagrams, pictures)?	Stevens, 2013	0.7	Reconcile
2.7.5. Are the different elements the plan is composed of listed (e.g., development concepts, plans, portfolio of concrete policies)?	This study	0.77	Reconcile
2.7.6. Does the plan include a sub-section describing the reasons that led to the development of the plan (e.g., need for more urban development, cantonal planning mandate)?	This study	0.63	Reconcile
2.7.7. Are the sections that are binding on planning officials (e.g., concrete policies) clearly distinguished from the sections that are not binding (e.g., description of the municipality, general development goals)?	This study	0.49	Reconcile

^aSource of protocol items; ^bValue of Krippendorff's alpha; ^cDecision regarding the reliability of protocol items: "reconcile"

means that the scores from both coders were simply reconciled to be included in the analysis; "reassess" means that the item had to be clarified and the scores reassessed before being reconciled and included in the analysis; "drop" means that the item was dropped from the final analysis.

Appendix D: Standards for the interpretation of alpha scores (adapted from Stevens, Lyles, & Berke, 2014)

Plan quality dimensions	Upper standard	Lower standard
1: Few items, highly discrete (Goals; Monitoring)	0.80	0.67
2: Many items, highly discrete (Policy Focus; Implementation; Participation)	0.70	0.58
3: Few items, highly distributed	0.50	0.42
4: Many items, highly distributed (Fact base; Interorganizational coordination ¹ ; Organization and presentation)	0.40	0.33

¹ The dimension *interorganizational coordination* was classified by Stevens et al. in group 3 (few items, highly distributed). Since we added some items to this dimension, we reclassified it as group 4 (many items, highly distributed).