

SPATIAL TRANSFORMATION BAROMETER

“Towards refinement of spatial transformation indicators for municipalities”

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BAROMETER

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Table of Contents

1	Introduction	3
1.1	About spatial transformation in South Africa	3
2	Municipal approaches to spatial transformation	6
2.1	Contextual overview	6
2.2	Specific municipal examples	8
2.2.1	<i>Township and Homeland Upgrades</i>	<i>8</i>
2.2.2	<i>Transforming and upgrading urban centres and developing new urban nodes.....</i>	<i>8</i>
2.2.3	<i>Focus on Densification and Integration</i>	<i>8</i>
2.2.4	<i>Focus on Informal Settlements.....</i>	<i>8</i>
2.2.5	<i>Infrastructure focus.....</i>	<i>9</i>
2.2.6	<i>Dealing with settlement patterns in former homelands.....</i>	<i>9</i>
2.3	Challenges in spatial transformation initiatives	9
3	Measuring spatial transformation	10
4	Conclusion.....	12

1 Introduction

Colonialism and apartheid have left South Africa with a deeply divided and inequitable distribution of people and economic activity. This spatial inequality traps disadvantaged communities in poverty and underdevelopment, creates inefficient cities and robs poor, rural people of secure livelihoods. (HLP Report)

South African society today has one of the most unfortunate inheritances of history. It is one of the most unequal and unevenly developed country in the world. This situation poses a great challenge to the intention and the ability of government through its municipalities to effect meaningful spatial transformation and foster economic integration and inclusive development.

Chapter 8 of the National Development Plan calls for the transformation of South Africa's human settlements and national spatial economy as a mechanism to address poverty and inequality. This has been taken up by SALGA who have initiated a programme to continuously monitor municipal interventions towards achieving spatial transformation that should produce the desired outcome of an inclusive and integrated economic growth in our towns and cities. SALGA has committed to produce an annual publication on municipal Spatial Transformation using its Spatial Transformation Barometer tool.

Through these planned annual reports and publications SALGA aims to support user of the Spatial Transformation Barometer to gain better understanding of the current state of spatial transformation in municipalities, provinces and the country as a whole; provide an understanding of the known change factors, such as population growth and environmental factors; highlight some of the constraining factors to spatial transformation; and establish a commonly accepted set of indicators that will be used in continuous monitoring and reporting on progress regarding municipal Spatial Transformation.

This year, a discussion document has been prepared as the basis for the project aiming to stimulate discussion on issues relating to spatial transformation including:

- What are the various perspectives on spatial inequality and transformation?
- How do we measure spatial inequality and spatial transformation and
- What information is readily available and can be used for this purpose?

1.1 About spatial transformation in South Africa

Spatial transformation entails the overhaul of an inherited segregatory spatial dispensation and preventing it from re-establishing itself in new forms of post-apartheid class and income-based spatial segregation and spatial inequality – SACN 2016.

The critical outcomes of spatial transformation are to provide proximity to employment and economic opportunities, reduce travel distance and cost, provide equitable access to land and housing, provide access to infrastructure and government services and ensure inclusivity in city and town integration. This is especially important due to increasing levels of spatial inequality in South Africa. Inequality has increased in Mangaung, Buffalo City, Nelson Mandela Bay and Ekurhuleni, whilst eThekweni, Cape Town, Johannesburg and Tshwane have reduced inequality.^{1 2}

Spatial inequality is inequality in income (or other factors) across a specific geographical area.³ David et al (2018) note that spatial inequalities are already high and are increasing in most developing countries. South Africa's apartheid

1 Although the authors note that Cape Town, the Johannesburg and Tshwane had much higher levels of inequality at both time points than the smaller metros where inequality increased.

2 Byaruhanga et al., 2019.

3 Ezcurra et al., 2014

and colonial history provides the base from which the country's unique spatial inequality patterns emerged. Therefore, a clean break away from the apartheid forms of planning and development patterns is a strong theme on the current discussions on spatial transformation.

Current literature on spatial inequality also shows a strong relationship between the quality of governance and spatial inequality. “Countries with better quality of government register lower levels of spatial inequality.”⁴ Spatial inequality produces further negative impact on the delivery of basic services, housing, health outcomes and access to employment opportunities.

A number of approaches to spatial transformation in a South African context can be identified. SALGA has embarked on a continuous process of developing tools to monitor, advocate and empower municipalities to engage in intentional integrated and inclusive spatial transformation programmes.

Meanwhile, the country has taken important key policy and legislative initiatives including among but not limited to:

- The Spatial Planning and Land Use Management Act (SPLUMA) of 2013, which was developed to address the need for spatial transformation and to address past spatial and regulatory imbalances amongst other issues.
 - o Its objectives (Section 3) include the following:
 - ensure that the system of spatial planning and land use management promotes social and economic inclusion.
 - redress the imbalances of the past and to ensure that there is equity in the application of spatial development planning and land use management systems.
 - The Integrated Urban Development Framework (IUDF) was developed in 2016 to encourage especially urban and metropolitan municipalities to plan for spatial transformation that can create compact, connected and coordinated cities and towns.
 - o Its strategic goals inform the priority objectives of the nine policy levers, which are premised on the understanding that (1) integrated urban planning forms the basis for achieving integrated urban development, which follows a specific sequence of urban policy actions: (2) integrated transport that informs (3) targeted investments into integrated human settlements, underpinned by (4) integrated infrastructure network systems and (5) efficient land governance, which all together can trigger (6) economic diversification and inclusion, and (7) empowered communities; all of the above will demand effective (8) governance and (9) financial reform to enable and sustain these policy actions
- The National Spatial Development Framework (NSDF) as developed by the department of agriculture, land reform and rural development (DALRRD) defines spatial transformation as follows: “In the South African context, this term broadly refers to a change in the structuring and organisation of settlements and economic activities, to:
 - (1) counter the segregated spatial patterns established during colonial and Apartheid times, and
 - (2) address/alter the inefficiencies, injustices and inequalities in access to opportunities resulting from these patterns.”

SALGA study on the refinement of spatial indicators suggest that a number of spatial transformation indicators should be identified to address the following critical transformation areas:

- **Proximity and Access** – to have ease of access to employment opportunities, social amenities and the like. This has a spatial element – short distances allow for easy access, but also a time element – some distances are easily traversed, through for example access roads and transport, whilst others can impose severe financial and time costs where roads are in bad condition, or public transport is not available.
- **Housing and Basic services** – the provision of reliable quality housing and basic services (electricity, water, sanitation and refuse removal) is a vital factor impacting on the health, social welfare and economic development of a residential community.

4 Ezcurra et al., 2014

- **Integration and inequality** – apartheid specifically and purposely divided people on the basis of their race. Therefore, an important measure of spatial transformation is to assess the extent to which this has changed. It is also necessary to assess transformation through levels of integration along class and educational attainment lines.
- **Safety and Amenity** – the quality and safety of living environments can be remarkably different. In some areas people are overly exposed to crime, environmental and other risks, whereas in others they are not. This is particularly concerning for lower income households where residential structures may not be sufficiently robust to stand up to rain or flooding. Under apartheid, residential neighbourhoods for black people were purposely neglected, and many of these neighbourhoods do not have recreational areas or other amenities.
- **Agency and Governance** – an important feature of quality living environments is the ability of individuals and households to participate in planning, operational and other issues through meaningful participatory processes. In addition, the way in which an area is governed can have a profound impact on its liveability.
- **Employment, Economic empowerment and Skills** – at the core of inequality is the lack of financial resources and the ability to change socio-economic status. This is a central issue that must be addressed in addition to the above.

2 Municipal approaches to spatial transformation

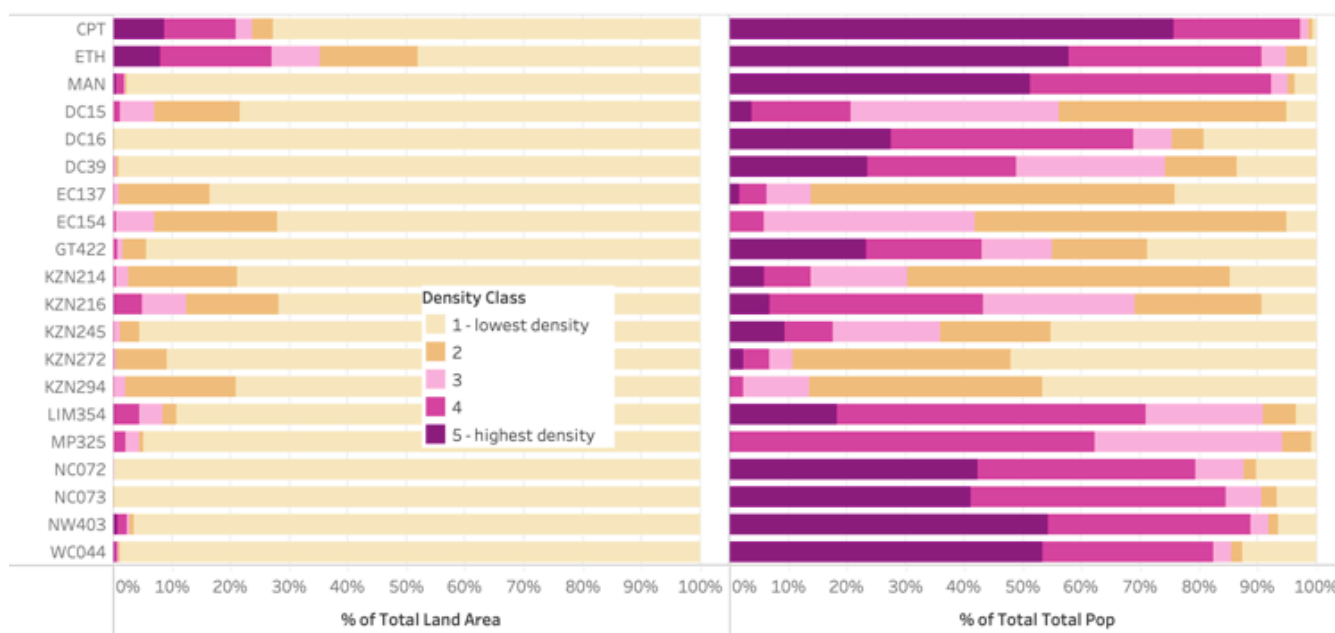
2.1 Contextual overview

The following figure demonstrates the different spatial contexts across 21 municipalities, showing the proportion of the population living in each municipality in different density bands:

- Class 1: Densities less than 150ppsk
- Class 2: densities 150-500ppsk
- Class 3: densities 500-1000ppsk
- Class 4: densities 1000-5000ppsk
- Class 5: densities >5000ppsk.

As may be seen, for 21 diverse municipalities, the spatial contexts vary significantly. Even in the Category A municipalities one finds that whilst the majority of the populations in Cape Town, eThekwni and Mangaung live in areas with densities over 5000ppsk, the proportion of land in which these high densities are found (the left column, Purple in the figure) range significantly across the metros. Clearly, some municipalities have compact high densities, whilst others have high densities more spread out and this illustrates the point that care must be taken when comparing indicators across different contexts:

Figure 1: Spatial contexts across 21 municipalities



This point is illustrated even further when one examines dissimilarity/segregation indicators across a range of municipalities as discussed above. The following table provides three instances where dissimilarity/segregation indicators were calculated using wards as the unit of analysis, and the indicators measure:

- The degree of segregation of people of Black African origin as compared with other races groups (Black African/ Other);
- The degree of segregation of proportions of employed people versus unemployed people (Employed/Unemployed) and
- The degree of segregation of people of low income versus people of high income (low/high income).

Segregation/Dissimilarity indicators range from zero (complete integration) to 1 (complete segregation). As may be seen, and as expected, the areas of higher economic activity tend to have greater segregation across racial, employment and income lines. The coincidence of spatial inequality along racial and class lines is borne out in that the correlation coefficients between these three sets of segregation indicators are very high (around 0,75).

Table 1: Segregation indicators

CAT_B	Name	%Black	Black African/ Other	Employed/ Unemployed	Low/ High Income
LIM354	Polokwane	94,0	0,77	0,36	0,66
MAN	Mangaung	83,8	0,76	0,27	0,71
FS204	Metsimaholo	82,5	0,76	0,28	0,73
KZN216	Ray Nkonyeni	85,3	0,75	0,28	0,57
KZN245	Umvoti	95,2	0,74	0,31	0,44
WC044	George	28,6	0,74	0,32	0,60
NW403	City of Matlosana	81,2	0,72	0,32	0,65
CPT	City of Cape Town	39,4	0,69	0,31	0,64
FS194	Maluti a Phofung	98,3	0,67	0,20	0,51
ETH	eThekweni	74,4	0,67	0,26	0,52
FS184	Matjhabeng	87,8	0,64	0,26	0,25
FS185	Nala	93,4	0,64	0,27	0,47
FS201	Moqhaka	87,4	0,64	0,28	0,55
FS192	Dihlabeng	87,6	0,57	0,25	0,57
FS191	Setsoto	92,5	0,56	0,23	0,44
EC157	King Sabata Dalindyebo	98,6	0,55	0,24	0,51
KZN214	uMuziwabantu	98,0	0,55	0,18	0,24
FS205	Mafube	92,0	0,54	0,17	0,41
FS203	Ngwathe	86,7	0,53	0,23	0,37
GT422	Midvaal	58,1	0,50	0,32	0,47
FS196	Mantsopa	88,8	0,48	0,18	0,45
FS193	Nketoana	91,6	0,42	0,17	0,43
MP325	Bushbuckridge	99,6	0,40	0,15	0,38
FS195	Phumelela	91,9	0,38	0,22	0,39
KZN272	Jozini	99,4	0,36	0,19	0,26
EC137	Engcobo	99,7	0,32	0,18	0,27
FS163	Mohokare	91,0	0,26	0,20	0,27
FS161	Letsemeng	68,0	0,23	0,21	0,34
MP326	Mbombela	89,4	0,22	0,22	0,57

CAT_B	Name	%Black	Black African/ Other	Employed/ Unemployed	Low/ High Income
KZN294	Maphumulo	99,7	0,20	0,17	0,19
FS162	Kopanong	71,8	0,20	0,12	0,05
FS182	Tokologo	84,7	0,15	0,16	0,07

2.2 Specific municipal examples

As part of the research for this project, municipalities were invited to provide information on work that they had undertaken towards spatial transformation. In addition, municipal IDPs, SDFs and other documents were researched to find examples of municipal approaches.

2.2.1 Township and Homeland Upgrades

Bushbuckridge have identified Mkhuhlu as one of a number of new urban nodes. During apartheid Mkhulu was part of Gazankulu. The Mkhuhlu precinct upgrade proposes a number of upgrades intended to improve the living environment and address its neglect under apartheid. These include safety upgrades to roads to reduce traffic and improve pedestrian safety, increased trading facilities for informal traders, including a new small scale fresh produce market and urban agriculture scheme. Development of new sports facilities, a new regional high court and office park in the area. There are also place-making projects including new signage, beautification projects, street furniture and public amenities.

2.2.2 Transforming and upgrading urban centres and developing new urban nodes

Municipalities such as Mbombela are focusing on expanding their current urban centres and creating new urban nodes to allow for greater access to economic activity and to create new housing close to economic opportunities. The Mbombela SDF identifies the need for integrated housing near to towns and public transport routes.

2.2.3 Focus on Densification and Integration

George municipality is an example of a municipality which is focusing on keeping development within its urban boundary and allowing for higher densities within the urban footprint, including new apartment buildings, infill and second dwellings. In addition, subsidised housing is planned to be developed alongside higher income dwellings to increase the residential mix.

The approach is to bring people to opportunities by allowing new housing opportunities within the restructuring zone. Their second approach of bringing opportunity to people has proved more difficult due to funding shortages.

The City of Cape Town have a similar approach which is focused on transit-oriented development and the diversification and densification of land along the corridors and nodal points.⁵ Access to public transport and the optimisation of associated locational benefits, became fundamental to the restructuring and spatial transformational agenda in Cape Town. This forms the strategic and policy basis for Cape Town to transform the sprawling, predominantly low density, mono-use city form by reducing travel distances and increasing the efficiency of infrastructure networks to the benefit all residents, businesses and other role players in the city.

2.2.4 Focus on Informal Settlements

The Letsemeng Local Municipality has developed a focused local SDF for the Phambili informal settlement, which has been growing over the past 25 years. The purpose of the LSDF is to guide the actions of the municipality as well as other spheres of government and the private sector in Phambili thereby coordinating and aligning development. These aim to address the lack of basic services in the area, and formalise the township, increase tenure security, provide access to economic opportunities in the form of an agricultural hub, address risk factors such as flooding.

5 CT Metropolitan SDF

2.2.5 Infrastructure focus

Mbombela have identified an Infrastructure Investment Zone which focuses on servicing backlogs and infrastructure needs in marginalized areas. These investments are specifically aimed at addressing infrastructure inequalities.

2.2.6 Dealing with settlement patterns in former homelands

Dr Ruth Segomotsi Mompati District Municipality spans a large area with over 430 dispersed villages – many who lack basic services, in particular water. These present significant problems in that they do not allow for economies of scale in the provision of basic services. The District have resolved to focus on the consistent delivery of basic services as the foundation for economic development and spatial transformation.

The NDPP supports municipalities with planning and implementation of infrastructure investments towards the creation of efficient and effective urban centres for the poor located in marginalised settlement areas. It includes technical assistance and capital grants.

Some of the key projects to be implemented within the MTEF includes:

- Linkage and NMT projects to link the hubs with communities
- Bulk and internal infrastructure provision to service the hubs
- Community and youth centres
- SMME and auto hubs.

These have also helped to leverage other private and public sector funding.

2.3 Challenges in spatial transformation initiatives

Some of the difficulties encountered by municipalities in spatial transformation are discussed below.

Authority and influence over other actors: Whilst the main tool of spatial transformation is the SDF, some municipalities find that other spheres of government do not align their plans to the local SDF and municipalities do not have the power to ensure that other spheres of government align their developments to the SDF. For example, the Dr Ruth Segomotsi Mompati District Municipality has attempted to create mixed income settlements, but Department of Housing has developed new settlements which comprise only low income households, further perpetuating the spatial inequalities. A significant reason for the slow pace of changing apartheid's spatial form is the difficulty in getting the private sector to invest in areas which were previously disadvantaged. This is related to the low levels of infrastructure in these areas, but also requires a mind-set change which most private sector companies are not willing to make.

Bulks – in many ex-homeland or township areas, bulk infrastructure was either not developed or is insufficient and the costs of developing new bulk infrastructure is significant.⁶ This is particularly difficult where settlements are scattered over a wide area.

Delays due to complex administrative requirements: George municipality note that they have developed and accepted the transformation policy, but implementation is slow due to the onerous processes involved (such as EIA permissions, land use changes etc).

Costs and budget availability: Costs and the availability of sufficient budget at the right time is a constraint to many municipalities. Spatial transformation – especially where it involves putting in infrastructure into previously neglected areas is costly. George municipality note that the main impediment to transformation and inclusivity in George, is the fact that, although planned, the Go-George services (Phase 4a) has not yet been rolled out to Thembaletu township.

3 Measuring spatial transformation

Understanding what is meant by spatial transformation provides a clearer indication of how to measure it. There are a wide range of potential indicators that are useful to informing and tracking spatial transformation. However, it is important to try and focus on a smaller selection of indicators which will be useful in informing a few key areas.

1. Firstly, indicators are needed to identify the location and nature of our spatial inequalities in order to understand what needs to be addressed, and where. This includes identifying which regions, municipalities and neighbourhoods have high levels of spatial inequality as well as identifying the nature of spatial inequality in order to understand the interventions needed.
2. Indicators should also assist in identifying areas of opportunity which can be used to transform the built environment and providing information to inform the tools which can be used to bring about spatial transformation (such as providing more accommodation in particular areas, allowing for densification in well located areas, increasing the quality and quantity of public transport offerings)
3. Indicators should also assist in identifying how effective the interventions are and the extent to which they result in greater levels of spatial equality.

A detailed set of indicators is proposed covering the following areas:

Table 2: Spatial transformation indicators

General area	Indicators
Proximity and Access	<ul style="list-style-type: none"> • Daily Commuting Time to Work • Commuting Costs • Access to public transport • Access to Services: Roads • Access to Services: Health • Access to Services: Education • Access to Services: Police Station
Housing and Basic services	<ul style="list-style-type: none"> • Water services • Electricity/ Energy • Access to Sanitation • Solid Waste/ Refuse Removal • Access to formal housing • Informal Settlements • Access to Internet • Land use change • Density • Population Change

General area	Indicators
Integration and Inequality	<ul style="list-style-type: none"> • Poverty • Inequality • Similarity or Dissimilarity • Household Composition • Gender imbalances • Tenure Security • Dependency Ratio • Apartheid legacy
Safety and Amenity	<ul style="list-style-type: none"> • Child Mortality Rate • Climate Vulnerability • Air quality
Agency and Governance	<ul style="list-style-type: none"> • Voter Turnout • Governance
Employment, Economic empowerment and Skills	<ul style="list-style-type: none"> • Employment/ Unemployment • Education and Skills

4 Conclusion

Potential exists to get municipalities to use the indicators described as benchmarks to map progress being made to address spatial inequality.

Importantly, too, is the institutional base of planning at a municipal level because unless the conditions allow for aligned plans, budgets and implementation, the ability for municipalities to redress the effects of the geography of colonialism and apartheid will be limited. Some of these institutional matters are:

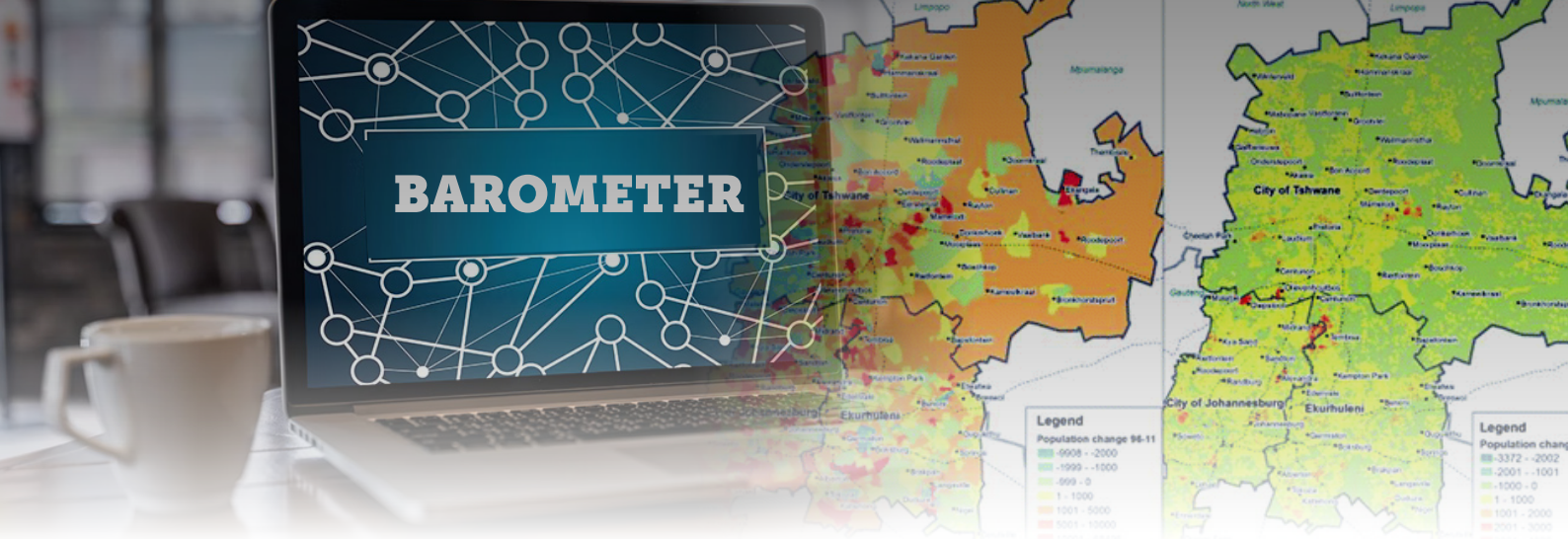
- Appointment of Municipal Planning Tribunal, Authorised Officers and the like and that they are functioning properly;
- Ensuring proper geocoding and GIS analysis: It needs to be recognised that some municipalities do not have GIS or data analysis capabilities in-house, SALGA could explore how some of that assistance could be provided centrally to assist municipalities in this process. Development Applications should be recorded in spatial format
- Finding ways to keep monitoring approved development applications in terms of the economic they create.

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NOTES

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