

SUSTAINABLE LIVELIHOODS, MOBILITY AND ACCESS NEEDS IN URBAN AND PERI-URBAN AREAS

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1. Introduction

This paper intends to outline the objectives of an on-going Knowledge and Research study being undertaken by TRL on behalf of the Department for International Development [DFID/UK] which is investigating ‘Sustainable Livelihoods, Access and Mobility’ in Zimbabwe and Uganda. The paper begins by discussing the Livelihoods Approach concept in relation to transport, and continues with an overview of the methodology used for the study, as well as a brief summary of findings from Phase 1 of the project.

The ‘sustainable livelihoods’ concept has been developed in the context of poverty alleviation, and developmental agencies and governments are increasingly using it in the design of policies, projects and programmes. Its adoption has been accompanied by a lively debate as to exactly what the term sustainable livelihoods means [Ashley and Carney 1999]. Is it an approach, an objective or a framework?

DFID sees the concept of sustainable livelihoods as an analytical tool comprising a set of core principles embedded within an overall theoretical framework [Ashley and Carney 1999]. There are other contending views but increasing numbers of academics and development practitioners are open to the use of the term to enhance understanding of individual, household or community efforts to achieve day-to-day survival and long-term betterment in a developing country context. For brevity and convenience this shared perspective will be referred to simply as the Livelihoods Approach [LA].

To date experience with the LA is strongly biased towards rural areas, but interest in urban applications is increasing.¹ There has been a similar sectoral bias in the LA with application especially prevalent in the realm of natural resource utilisation. Until recently, applications in the transport sector have been comparatively rare, and an aim of this research is to explore its pertinence to sectoral policy intervention. The concept and interpretation of transport as a livelihood asset is not well developed within the LA literature. Consequently the usefulness of the LA as a means of improving the focus and design of interventions in the transport sector aimed at meeting the mobility needs of the poor, remains uncertain.

¹ UNDP among others are working on the use of the livelihoods approach in urban areas.

1.1 Project purpose

The main purpose of this research project is an ‘investigation of the utility of the sustainable livelihoods approach in identifying the mobility and accessibility needs of the poor, with specific reference to rural-urban linkages’.² Our aim is to establish whether or not the use of the LA offers a more discriminating means for designing and targeting interventions in the transport sector such that they will better meet the mobility needs of the poor. It proposes to do this by focusing on and analysing the transport patterns and livelihood portfolios of an economically stratified sample of households, with emphasis on the nature of conditions pertaining to poor communities.

2. Transport, Mobility and Accessibility in a Livelihoods Framework

2.1 Nature and function of transport

All communities require accessibility to supplies, services, facilities and work opportunities. The accessibility of such things can be measured in different ways [Jones 1981]. Accessibility depends on infrastructure and available and affordable modes of transport for the movement of people and their loads. Accessibility therefore depends on physical proximity and mobility. It may be improved by greater mobility and/or improved proximity.

In the broadest sense, transport infrastructure includes: paths, roads, bridges, tram and train tracks and stations, waterways, airports and air lanes. A variety of transport modes are used to carry passengers and/or freight, namely: trucks, pickups, buses, mini-buses, cars, motorcycles, boats, trains, trams, animal transport, bicycles, handcarts and self-propelled walking. These modes are utilised for private or commercial use. Commercial transport services involve the users paying fares or hire charges.

Transport infrastructure and transport modes form operational ‘transport systems’. Mobility for men, women, children and goods depends on the availability, affordability and efficiency of such transport systems. It must be emphasised that it is the combination of these components that comprise a system of transport. Proximity to a road system without access to vehicles conveys little or no benefit. Similarly, some vehicles, but not necessarily the less sophisticated, cannot function without a road in reasonable condition.

Transport infrastructure is largely devoid of mobility enhancement in the absence of efficient modes of transport. Individual utility is derived from infrastructure when modal choice is exercised within the transport system to gain access to required goods and services. Hence the accessibility provided by a transport system has long been seen as its most fundamental function or attribute. The importance of this characteristic has overshadowed analytical distinctions, such that road and other infrastructure have been incorrectly treated as synonymous with accessibility in most developing countries. Indeed it has long been assumed that the correct role of government and aid agencies lies in the provision of road infrastructure in poor areas, and not the vehicles, without which the infrastructure becomes dysfunctional.

2.2 Transport within the LA and related literature

The theoretical literature on LA categorises transport in a rather different way. Scoones [1998] used the category economic and financial capital to describe basic infrastructure and production equipment and technologies. Subsequently this was split into two categories physical and financial capital, with transport assigned to the first in the form of the basic infrastructure and producer goods needed to support livelihoods [DFID 1999].

² The provision of *mobility* and *accessibility* are the main outputs of a transport system. The two are related but often confused concepts that can have distinct meanings in policy terms. The nature and implications of these meanings are central concerns of this research and will be elaborated subsequently.

Important here, and related to the above distinction between transport infrastructure and modal operations, is the notion that transport comprises two capital components over which the individual normally has different degrees of control: [i] infrastructure [e.g. a road] that is commonly a public good and is usually used without direct payment; and [ii] 'equipment', i.e. transport modes that tend to be more directly controllable by the individual [e.g. self-propelled walking, self-driven bicycles and cars, or bus usage with which the individual chooses timing and direction of movement] with modal choice dependant primarily on affordability and movement efficiency. Individuals usually have little influence over the provision, or even condition, of infrastructure. Transport modes on the other hand may be owned on an individual or group basis, or accessed through 'fee for service payments', the latter being more common with the most technologically-based modes [e.g. buses]. Of course transport modes may be available but not affordable by a given [poor] individual. The distinction in the control that an individual has over the use of transport infrastructure and 'equipment' [transport mode] capital can be crucial to livelihood pursuits.

The description of transport as physical capital tends to mask its separate roles as a construction industry in its building and maintenance, and as a service industry in its operation [Howe 1999]. Each can be a direct source of livelihood (employment) or acting together can support the conduct of livelihood activities.

Published research on transport incorporating a livelihoods approach is very recent [e.g. Davis 2000, Sohail 2000]. Both cited examples did not adopt a household-based approach to explore the interconnections between LA and more conventional transport research approaches. Davis' rural research was based on a participatory cross-sectional study of six districts in the Northern and Copperbelt provinces of Zambia. Village-level surveys were used to determine accessibility to services and people's opinions and attitudes to the problems they faced. Accessibility and mobility issues and their relation to livelihood prospects were described in qualitative terms. Sohail's [2000] urban research focused on the provision of transport services for commuters in a major Asian city, Karachi. The impact of transport services on livelihoods was investigated mainly by considering accessibility and quality aspects as determined from user interviews complemented by a detailed analysis of the conditions under which the industry has evolved and currently operates. Monthly expenditure on transport and the time spent travelling were quantified.

2.3 Distinguishing mobility and accessibility

The notion of access is central to theoretical models of the livelihoods approach, but its use is much wider and more general than has been conventional in discussions of transport attributes [Ellis 2000]. For the latter the term accessibility is preferred as being more in keeping with discussions in transport studies and to distinguish it from the wider concept of access in the livelihoods literature [Anderson et al. 1988]. However, our usage of the term accessibility will be largely informed by a social science perspective which distinguishes mobility as human agency from accessibility as physical proximity, i.e. fixed, inanimate locations. Transport modes provide the physical means to facilitate movement. Their presence or absence influence human decision-making, enhancing or reducing the accessibility of specific fixed locations.

Mobility is simply a measure of the agency with which people choose to move themselves or their goods around. This involves two components. The first of these depends on the performance of the transport system, which is affected by where the person is, the time of day and the direction in which they wish to travel. The second component depends on the characteristics of the individual such as whether s/he has a bicycle or car available, can afford taxi, bus, or rail fares, is able to walk or use public transport, or has knowledge of the options available [Porter 1988 and 1997]. In other words, the first element is concerned with the effectiveness of the transport system in connecting spatially separated locations, and the second element is concerned with the extent to which a particular individual or type of person is able to make use of the transport system.

An inherent difficulty in assessing mobility is the problem of measuring an ability or 'potential' to travel. Due to the difficulty of measuring movement that could take place but does not - for reasons of cost, time or effort - studies of mobility have tended to use data on actual movements or output measures [Heraty 1980, Jacobs *et al.* 1980, Maunder 1984].

Care in interpretation of travel statistics is needed in connection with assessments of economic or social welfare. A community in which little movement is undertaken may represent an efficiently planned settlement with few external needs. On the other hand, a community showing low levels of travel and low travel costs may through lack of time or money or both have unmet travel requirements for meeting basic survival needs in the form of water, firewood or food. Such a community faces a lack of mobility options that imposes a real restriction on people's desired activities.

In general, these contrary interpretations can be distinguished by defining the travel mode and purpose of travel in more detail. Frequent motorized vehicle trips are more likely to represent a highly mobile affluent community than frequent foot journeys. Similarly trips to fetch water are likely to be a high proportion of travel in poor communities. The units in which movement is measured will also affect the interpretation of travel statistics. Time spent travelling to collect water daily, for example, may be ambiguous. The time required for one trip would decrease as mobility increases, but the demand for water is likely to rise, as travel becomes easier.

Accessibility, or the perceived proximity of desired locational destinations, is heavily influenced by the transport mode being used. Accessibility is concerned not with behaviour but with the opportunity, or potential, provided by the transport and land-use system for different types of people to engage in activities.

The two concepts of mobility and accessibility are clearly related but can be easily confused when they are not distinguished from the intervening facilitation of different modes of transport. In the transport literature accessibility is often defined as the ease with which one reaches a desired location. In fact taking a more social science perspective which traces agency and process, 'ease of movement' and 'ease of access' are attributes of the transport modality rather than a feature of the mobile agent or the locational destination per se. Table 1 endeavours to distinguish the three separate but inter-related concepts of mobility, modal facilitation of movement and accessibility.

Table 1: Relationship between mobility, transport modality and accessibility

MOBILITY \Rightarrow	TRANSPORT MODALITY \Rightarrow	ACCESSIBILITY
Agency Human agent's decision-making over destination and mode of transport and the resultant movement	Means Ease of movement/ accessibility derived from means of transport at disposal of the decision-maker	Ends The proximity of inanimate locational destination that serves as the objective of movement

In current transport literature, the meaning of mobility and accessibility in developed and developing societies does not always take cognizance of their differing contexts [Ross 2000]. Developed societies often exhibit a number of different modal options for reaching a desired destination. Mobility is then simply a wide range of travel options.

It is sometimes claimed that accessibility not movement is the true aim of transport [Mitchell and Town 1977, Tolley and Turton 1995]. This has led to the identification of accessibility constraints as the methodological basis for deciding transport deficiencies, especially among impoverished rural communities [Dixon-Fyle 1998, Dennis 1998]. It has also led to the realisation that some

accessibility problems can be addressed by non-transport means. For example, by provision of the facilities to which communities need accessibility, e.g. a more convenient health center, or supply of water.

To define accessibility in practice, the intended destinations must be specified. In general, the destinations will be places offering opportunities for a desired activity.³ Accessibility is then measurable in terms of the number of opportunities or destinations reachable in a given time or distance, or as the inverse of travel costs to the desired activity/destination.

For the poor, accessibility to, or standard of, a social or physical service depends in some cases on movement by visitors from outside the community. For example, standards of health and education services are obtained to a significant extent by visits from central staff and deliveries of supplies. This inward access of services or goods can be embraced in the concept of accessibility by specifying proximity to an activity rather than to a place, for example, proximity to functioning health facilities rather than a specific clinic.

In the more developed countries mobility has come to be seen in negative terms because of the perceived excessive reliance on private car use and the associated congestion and pollution. In contrast, accessibility is generally always seen as making a positive contribution to a community. However, in developing societies it is widely accepted that accessibility to destinations can be enhanced by improving mobility. This is true because: modal choices are restricted, prevailing levels of mobility are low, and/or modes of transport upon which mobility are based are non-polluting.

There is now a substantial literature on the concept of accessibility, especially as it affects rural developing communities, and how it is influenced by location, transport and a host of other factors [Barwell 1996, Dennis 1998, Edmonds 1998].⁴ To some extent the emphasis on accessibility, and the negative connotation resulting from studies in more developed societies, seems to have distracted attention from mobility and how it might influence livelihoods.⁵ Yet in the circumstances prevailing in many developing countries, and in both urban and rural environments, targeted interventions that improve personal mobility may have a more positive effect on the livelihoods of the poor than is likely from accessibility improvements. This conclusion results from considering a number of factors, including:

- [i] Diversification of individual and household income sources, which require movement flexibility in space and time that it is difficult to promote by changing whole transport systems. It may be easier and quicker to address the mobility needs of the individuals concerned by carefully targeted measures.
- [ii] Most rural and urban areas have immense backlogs of maintenance or remedial work to restore the main categories of the existing roads to working order. The pragmatic necessity to maintain road hierarchies means that the infrastructural needs of remote poor communities are unlikely to be a priority for many years.
- [iii] Small clusters of poor users, or generally low population densities, are especially problematic since they cannot support either the cost of infrastructure or conventional transport services. In such circumstances, simple mobility enhancements that do not need expensive infrastructure facilities, may be a more practical proposition for enhancing livelihoods [Hine and Rutter 2000, Howe and Bryceson 2000].

³ This may be problematic for some informal sector employment activities, such as hawking, which are by nature itinerant.

⁴ The special problems that *inaccessibility* have on remote communities, women, and various sectoral interests - health, education, water supply, etc. - have also been extensively researched. While little of this work has been directly linked to the debate on livelihoods it can often be inferred.

⁵ This aspect is starting to be addressed [see Kwakye *et al.* 1997, Airey and Cundill 1998, Hine and Rutter 2000, Roberts *et al.* 2000].

In this research an emphasis on mobility is preferred because it is concerned directly with behaviour. This is more in keeping with the decisions that must be made to ensure, enhance and sustain livelihoods.

To isolate the influence of mobility levels and changes on livelihoods it seems sensible to hold accessibility constraints reasonably constant. This can be achieved by excluding the sampling of remote communities. These are often dominated either by severe road access problems or major [long-distance] mobility constraints that preclude individual initiatives. They have, in any case, already been extensively studied [Barwell 1996, Dennis 1998, Hine and Rutter 2000].

2.4 Relating mobility and accessibility to livelihoods and rural-urban linkages

Pearse [1980] first employed a 'livelihoods approach' to study the impact of green revolution innovation on rural farming. In his study, he attempted to provide a holistic way of evaluating the introduction of new technology on rural people's welfare. Chambers [1987] made reference to livelihoods, but it was only in the 1990s that the term began to be used more generally, usually in the context of 'coping' with new production constraints and welfare shortfalls. At first, this tended to be in the context of drought or natural disaster, but later it was applied to the duress of structural adjustment, subsidy removals and cutbacks as well as increased market competition associated with economic liberalisation.

2.5 Poverty, livelihoods, and mobility

Classifying the poor on the basis of income-earning criteria has always been problematic, especially with respect to the valuation of the large subsistence sector found particularly in rural farming areas. In its place 'standard food basket' measures have been devised which represent an improvement, but nonetheless pose various technical difficulties with respect to data gathering [Hanmer, Pyatt and White 1997]. Most recently, more qualitative indicators of poverty have arisen, supported by the World Bank's recent efforts to listen to the 'voices of the poor' and their definitions of poverty. In this context, a lack of physical mobility emerges as a significant aspect of the poor's deprivation.

Another literature-based study noted several gaps in current understanding of the role of mobility in the lives of poor people [Roberts et al. 2000]. Specifically, lack of understanding concerning: (i) the activity patterns of the urban poor and the relation of these to household attributes and mobility needs; and (ii) the importance of urban-rural linkages and the role of transport in supporting them. The study of (i) is likely to be particularly challenging because of the complex structure of families and extended households [with or without rural-urban linkages]; diverse cultural and religious attitudes; the informal nature of much employment; and the gainful employment of both the young and old [Fouracre et al. 1999].

3. Research Design

This study has been designed in light of the above cited livelihoods literature as well as the existing conventional transport and poverty debates. The methodology endeavours to discern patterns of movement on the basis of economic strata, highlighting to what degree the poor's mobility, in contrast to other groups, is directed at livelihood pursuits and how they combine their mobility options with livelihood pursuits. We explore the seemingly contradictory premises of the poverty and livelihoods literature, namely, that the poor's mobility is relatively restricted at the same time, as their diversified livelihood strategies are requiring them to be more mobile.

The projected research aims of this study are four-fold:

- [i] establishment of mobility and accessibility concepts and a viable research methodology for the study of mobility and accessibility within the sustainable livelihoods framework;

- [ii] documentation of the relative importance and nature of mobility patterns in relation to livelihood pursuits of stratified economic strata;
- [iii] exploration of the influence of rural-urban linkages on mobility patterns and how rural-urban differences affect mobility and livelihood options, especially of the poor; and
- [iv] identification of measures to ensure mobility and accessibility policies to enhance the poor's livelihood prospects.

3.1 Discerning rural-urban linkages between nodes within a transect corridor

This study will be observing access to formal and informal employment opportunities, natural resources and markets that are influenced by population density and settlement location through a comparison of primate cities, their peri-urban areas, secondary cities and rural settlements.

In the two selected case study countries, nodes will be selected from within a single transect corridor. The designation of a single transect corridor for the selection of study sites has four aims: first, it limits the degree of climatic and natural resource variation for comparison of study site mobility patterns. Second, because the corridor is selected to embrace all four settlement types and is situated in a relatively densely populated part of the country, it offers a diverse sample of livelihood, transport and economically stratified household patterns, with anticipated marked contrasts between rural, urban and peri-urban poverty. Third, it provides a coherent geographical unit for tracing the degree of connectivity between adjacent rural and urban study sites. Fourth, it demonstrates differences between rural and urban livelihood pursuits and accessibility to capital assets.

We use the terms 'rural-urban linkages' to refer not only to the physical movement of goods, people and information between rural and urban locations. Transport conditions, mobility patterns and types and degrees of 'rural-urban connectivity' are traced within and beyond the transect corridor to facilitate the determination of relative ease of movement and proximity to resources for the development of individual and household livelihood portfolios. It is important to stress that the study of the sampled population's mobility will not be geographically restricted to the transect corridor. Their daily and extraordinary mobility will be recorded regardless of destination.

Differences and similarities in urban, peri-urban and rural transport conditions and mobility patterns will be highlighted. The use of a rural-urban transect corridor may help to discern the relative importance of personal mobility versus proximity [accessibility] to assets for livelihood pursuits. We term the latter 'accessibility to livelihood assets' [ALA] that can be delineated as proximity to: natural, social, human, physical and financial resources.

The mobility variables which will be recorded and analysed will include: number of trips and purpose of travel; mode of transport; and cost, distance, time and, where possible, speed travelled. Measurement of these variables will assist in arriving at an understanding of the ease of movement to formal and informal employment activities, i.e. the 'work mobility' possessed by the transport poor relative to medium and high-income groups.

3.2 Activity-based model of travel demand

While emphasis in this study will be placed on tracing the interaction between mobility and economic livelihood, we will endeavour to capture a full picture of the functional nature of mobility on the part of the rich, poor and median populations sampled. In this way, the relative importance that 'work mobility' plays in the mobility patterns of the poor will become apparent. To this end, we will employ an activity-based model of travel demand that entails data collection about the full range of people's daily activities that involve movement outside the confines of their houses. Activity-based models can fall victim to bewildering detail, in the absence of some attempt to

analytically streamline the meaning of ‘activity’ [Benwell 1981, Jones et al. 1987]. We therefore delineate mobility associated with five broad categories of functional activity, namely:

- [i] economic activities - any output of services or goods that results in income or material sustenance in the short and medium-term;
- [ii] maintenance activities – necessary expenditure of effort to renew one’s daily living requirements which includes firewood and water collection, and shopping;
- [iii] improvement activities – attendance at health, education and other personal-enhancing services [human capital];
- [iv] social networking – visits to kin and associational ties be they friends or business contacts [social capital]; and
- [v] leisure and recreational activities – sports, dancing, and cultural events that are pursued for individual or group enjoyment rather than for instrumental associational ties.

3.3 Study Locations

The transect corridors used for the study are in Zimbabwe: Harare-Bindura and Uganda: Kampala-Jinja. Both corridors comprise distances of about 80 km. Uganda and Zimbabwe provide interesting economic contrasts for this study. Both are land-locked countries which influences transport facilities. Until relatively recently Zimbabwe enjoyed considerably greater economic success, higher levels of GNP albeit with significant income inequality, and a more diversified and complex economy. However, both countries have been facing severe livelihood challenges. Both have been subject to rapidly fluctuating levels of welfare as well as enormous economic restructuring. In Zimbabwe’s case, retrenchments in the formal sector have been pronounced during the 1990s. Industry has decreased over the past 25 years with services making up the difference. In Uganda, agriculture has been shrinking in value terms and as an absorber of labour. A de-agrarianisation process, already documented for other countries in Africa, has gained momentum [Bryceson 1999]. In Zimbabwe, smallholder farming has been constrained by land availability, an issue that now threatens the stability of the country. All of these features of economic restructuring are likely to have spurred occupational experimentation and possibly geographical movement on the part of economically displaced individuals.

3.4 Study Phases

3.4.1 Phase I: Identification of transect corridors and general mobility patterns [projected October 2000-March 2001]

Phase I is designed to broadly map out mobility and the role of transport in households’ everyday lives. Four sites are chosen to compare and contrast the transport modality choices and mobility patterns of household members vis-à-vis the five major activity categorisations listed above.

- Identification of transect corridors in the study area

[C^{cc}][SS^{cc}][PU^{cc}][V][SC]

- Capital city [C^{cc}]
 - Capital City centre [C] – high and middle income populations
 - Squatter settlement within city [SS] – low income populations
- Peri-urban area [PU^{cc}] [approximately 5-15 km away from capital city] – high, middle and low income populations
- Village [V] [approximately 40-50 km away from capital city]– high, middle and low income populations
- Secondary city [SC] - high, middle and low income populations

- Collection of background data and statistics on the politics and economics of Uganda and Zimbabwe as well as published material on the localities within the transect corridors
- Key informant interviews
- Focus group interviews about transport, livelihoods and self-assessed poverty indicators
- Inventory of local transport services

3.4.2 Phase 2: Research on relationship between transport modal choice and daily life by economic strata [projected May-August 2001]

This phase is primarily directed at a large household survey that will collect basic occupational information and data on trip patterns, purpose and timing of all members on the previous weekday.

- Survey of transport modes, trip purpose and economic livelihoods along the study area transect corridor

Total sample survey = 360 households [in each location 30 high, middle and low income households to be interviewed]

- Capital city centre [C^{cc}] = 90 households
- Peri-urban area [PU^{cc}] = 90 households
- Village [V] = 90 households
- Secondary city [SC] = 90 households

3.4.3 Phase 3: Survey of Transport-Livelihood Inter-relationships [projected September-October 2001]

- During this phase, a smaller select sample of households will be surveyed in order to ascertain the inter-connections between mobility patterns and livelihood pursuits.
- Detailed survey of intra-household transport/livelihood patterns and transport diaries of key informants by economic strata and occupation

3.4.4 Analysis and Findings

The data from each phase will be analysed and draft reports produced for each country. These reports will form the focus of in-country workshops where it is hoped all stakeholders will participate.

Finally in May 2002 a TRL report will be published drawing on the findings from both case study countries. This report will be presented to DFID at a workshop held in London.

4. Project Progress

Phase 1 of the project has been successfully completed with a total of sixteen focus group discussions being carried out in each country across the four survey sites located within the transport corridor: capital city, peri-urban, rural and secondary city. Focus groups were disaggregated by age and gender and were supplemented by key informant interviews of community leaders and transport service operators. The focus groups revealed interesting findings in relation to longitudinal patterns of short and long distance movements, as well as explanations for migratory change and general attitudes towards travel. Analysis of focus group transcripts will be incorporated into the country reports.

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David Arthur Charles MAUNDER

Position	Senior Urban Transport Project Manager
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Experience Summary	<p>Has 26 years experience of working on urban transport and public transport issues in developing countries. He has managed and worked on projects representing the entire spectrum of public transport operations from road based para-transit and stage bus operations to evaluations of proposed metros and LRT networks. Dr Maunder has completed major long term urban transport assignments in India and Zimbabwe and has experience of working in numerous African and Asian countries as well as eastern Europe.</p> <p>Recently Dr Maunder has investigated the causes of road based public transport accidents in five developing countries. He is currently working in St Petersburg on a PPI initiative for the publicly owned bus company, advising the University of Loughborough on a research project funded by DFID and is managing the project which he is going to describe to us today</p>
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