

# EXPLORING THE STRATEGIC POSITIONING OF RAILWAYS FOR COMPETITIVENESS AND SUSTAINABILITY

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## 1 Introduction

### 1.1 *Positioning an entity*

#### 1.1.1 Principles—in general

Positioning is not a legacy: It is a conscious act by empowered stakeholders who will leave an inappropriate legacy to establish a new, robust, position. Railways have entered their third century, in a global environment that has changed forever. Information technology and transport technology have converged to create global logistics for freight, and intelligent mobility for passengers. The Law of Diminishing returns in economics has made way for the emerging Law of Increasing Returns, which is creating new opportunities for networked railways in a global context.

#### 1.1.2 Principles—applied to Africa

At continental level, the African Union (AU) has articulated clearly and exhaustively Africa's railway challenges. Some high-level items are:

- Low permissible axle load and –speed,
- Lack of physical integration or networkability, aggravated- or caused by heterogeneity of track gauges,
- Intractable relationships between governments and railway enterprises,
- Scarcity of public investment,
- Diverse technology standards that constrain interoperability, and
- Partial privatization, with results falling below expectations.

The AU has done a creditable job of identifying these issues and proposing remedial interventions. Why do the continent's railways still appear to be stuck in notch one?

#### 1.1.3 A research foundation

What insight can the author add to the above? Resting on research on a global database, this paper does not report on the research, but presents inferences drawn thereon. Please refer to [www.railcorpstrat.com](http://www.railcorpstrat.com) for more material than can be mentioned here. In particular, statistical analysis revealed three clusters: First, Insecure Railways, which are threatened by one or more of the items mentioned in §1.1.2; second Enlightened Railways, which have recognized and are dealing with those issues; and third, Assertive Railways, which fully exploit rail's competitive strengths. Many of Africa's railways, and indeed almost three-quarters of the world's countries with railways, find themselves in the Insecure cluster. This paper considers how Enlightened and Assertive railways got there, to amplify some of the items in §1.1.2.

## **1.2 *Railway competitiveness and sustainability***

Competitiveness is driven by rail's three genetic technologies, Bearing (the ability to carry heavy axle load), Guiding (the ability to run at high speed), and Coupling (the ability to couple vehicles together to achieve capacity). Bearing supports Heavy Haul, Guiding supports High-speed Intercity, and together they support Double Stack. Coupling leverages all three market spaces to give requisite capacity, and endows Urban Rail with its strength of high capacity. Sustainability is the ability to generate funds for new investment. The author's research has shown that sustainability associates with competitiveness. This outcome is consistent with business in general, namely that competition improves the offering, and the fittest businesses are sustainable. The next section highlights some key positioning issues.

## **2 Some key railway positioning issues**

### **2.1 *Ownership***

The author's research has shown that state versus private ownership of railways is a critical element of moving out of the Insecure cluster. It is important both to allowing management freedom to follow good business principles, and to stimulating competitiveness.

### **2.2 *Concessioning***

In recognition of §2.1, private participation has been drawn into African railways by various concessions. Some results have thus far fallen below expectations. It is evident that uncompetitiveness has afflicted them. While private initiative can activate a moribund railway, it cannot overcome inherent uncompetitiveness. The result is that incremental or new investments expected by a concessionor do not materialize, with the further downstream result that a concessionaire is inclined to harvest assets. While that might not be the desired outcome, it is perhaps the only possible outcome where inherent uncompetitiveness is present.

### **2.3 *Networking***

Railways in Africa are generally not networks, although many are inclined to call them that. As an element of the railway renaissance, networks support the ability to convey rail freight over long distances. The author's research has shown that, on global scale, meter gauge does not support networkability, and therefore precludes such railways from participating in the high growth double stack market space. Africa has a diverse track gauge legacy: While it will be difficult to overcome it, failing to do might miss the relation between competitiveness and railway strategic horizon, which ideally should stretch to continental and beyond.

### **2.4 *Globalization***

The railway industry is globalizing like any other. Two conferences mark leading thinking—Global Rail Freight Conference 2007, in India, and World Congress on Railway Research 2008, in Korea. Globalization has two major impacts on railways. First, the industry is standardizing on mainstream solutions, which are driving down costs for those that participate. Secondly, a global railway network is taking shape. Railways that do not fit, or are on the periphery, have not prospered. Standard gauge track facilitates participation.

### **2.5 *A role for railways in Africa?***

At present, no continental railway network exists in Africa: Any discussion of such a network therefore rests on hypotheses. If one can formulate hypotheses, science requires alternative

hypotheses, which should exhaust all plausible explanations. One alternative hypothesis must be that the role for railways in Africa is limited, i.e. heavy haul railways to convey bulk minerals to a port for export, and urban railways. These railway applications neither require nor support continental networking.

No railway stakeholders in Africa aspire to the alternative hypothesis, so the author will not dwell on it further. Nevertheless, it does direct attention to the role of road, as a significant competitor for rail, in Africa. There are several reasons why road should lead rail in developing economies, most particularly low entry barriers, scalability from rough tracks to highways, and ubiquitous access. One should therefore not underestimate its strength.

Railways led development when they were the prime land transport mode. Nowadays, railways no longer lead development, but have transformed into formidable competitors in high volume corridors. Railways therefore need to find a symbiotic role with road until their host economy can support the requisite high traffic volumes.

### **3 Shaping the African railway vision**

#### **3.1 *The first legacy***

During the establishment of railways in Africa, no African unity existed; and likewise no unity existed among the colonial powers. The resultant absence of integration, and the technological- and interoperability muddle, are no surprise. Today, African unity does exist, and the railway agenda is clearly articulated, at least in aspirational terms, if not in bankable plans.

The first legacy was poor by the standards colonial powers applied to their own railways. It has left African railways outside the global mainstream, with all the handicaps that associate with that. Today that legacy serves as a caution signal to railway stakeholders—do they wish to replay that scenario as future development opportunities arise? The desired outcome is clearly understood: What are evidently missing are the modalities of migrating from the present legacy to that outcome.

The commitment horizon of major new railway investments is forty- to fifty years, so the next legacy will bind railways for a generation before an opportunity to re-strategize comes round again. It is therefore vitally important to correct the positioning of African railways during every round of new investment: The issues are distributed on a continuum between the following idealistic and pragmatic poles.

#### **3.2 *Interoperability and networkability: The idealistic pole***

The present legacy was not intended to support competitive or integrated railways. Assuming that there is a role for railways in Africa at all, renovation of that legacy ought not to be another patchwork job. The present volume of general freight moving across multiple borders in Africa by rail is small: Arguably, it is natural truck business. If railways do not stake out their market space, trucking will entrench itself ever more firmly. However, in many instances, general rail freight is not naturally competitive. Furthermore, High-speed Intercity and Double Stacking will remain a holy grail until African economic development can support their substantial investment thresholds.

It thus appears that African railways will not join the mainstream without kick starting. Noting the strengths mentioned in §1.2, and the positioning issues mentioned in §2, it is evident that network integration is an essential prerequisite, but probably not in the regional track gauge groups preferred by the AU, namely 1435mm in the North, 1067mm in the South

and East, and 1000mm in the West. The latter arrangement would only perpetuate the continent's railway dis-integration.

It is therefore necessary to conceive a core general freight continental rail network, with the potential ultimately to support Africa's development aspirations. When the time is economically opportune, track gauge and technical interoperability will be critical for creating an environment that will attract investors. Such a skeletal network would connect existing inland railheads with a standard gauge continental backbone and branches, and/or – peripheral ring. This would allow existing railways to continue operating without change, and simultaneously support unrestricted continental interchange by transloading. As traffic- and economic opportunities materialize, it could become possible to extend standard gauge to enlarge the continental network, by re-gauging or dual-gauging, and thereby shrink the non-standard gauge portions.

### **3.3 *Bankability: The pragmatic pole***

#### **3.3.1 Introduction**

Without appropriate funding, the idealistic pole will remain stillborn. African railways have already found it difficult to fund their aspirations or needs. Donor fatigue appears to have set in. Possible investors expect that existing railways should look after what they have before funding will be forthcoming for more. Railway deficits and -subsidies are no longer tenable—governments around the world are finding that education, health, and security stretch their means to the limit. A search for new sources of funding for African railways is therefore necessary.

Other sources are willing to fund income-generating projects, conditional upon a sound commercial deal. The easy part is rolling stock, which is available for lease or sale, new or used, in the global market. The more difficult part is infrastructure, where investors cannot readily retrieve their investments. It therefore appears that governments will generally remain accountable for infrastructure into the foreseeable future.

Former colonial powers have been unable or unwilling to put their legacy right. It therefore appears that African railways might need to look to some fairy godmother for assistance. While advice might be freely available, it might not always be trustworthy. The dynamics of global influence have changed, and are still changing. Chinese interest has recently touched Africa. As India's economy grows, it too could show interest in Africa. China is currently the only source of affordable, moderate duty, narrow gauge locomotives. Attractive though that be, it is important to appreciate that attractive price cannot neutralize the strategic handicap of narrow gauge. Yet China's attentions might well offer a way out of Africa's railway legacy.

One way out, and perhaps the only one, is to mortgage short-term development funding against the long-term value of Africa's natural resources. In a sense, this could barter the future for the present. Such a transaction would require an inventory of all Africa's exportable natural resources and all its development requirements, to support leveraging the one from the other. Obviously, there are economic and political modalities between the short term and the long term: A potential first mistake would be to underestimate their complexity and delicacy.

### **3.4 *A viable vision***

The foregoing reasoning has been presented to develop an alternative to multi-gauge strategic proposals, which will deliver neither interoperability within Africa, nor wider interoperability from those African countries that are contiguous with, or within reach by sea ferry of,

standard gauge railway networks on other landmasses, such as Europe, Asia Minor, and the Arabian Peninsula. It leads to the following inputs into a viable vision for sustainable railways in Africa.

Conceive a backbone, though integrated, standard gauge continental general freight railway network with the potential to support development aspirations.

Realize it, preferably under private-, alternatively under state ownership, by mortgaging it to revenue streams from future exploitation of natural resources.

Where feasible<sup>1</sup>, include existing railways, in full or in part, or at least link with them through transloading<sup>2</sup>.

Allow and encourage private sector train operators, who may source new- or used rolling stock in the global market.

Allow existing heavy haul- and urban railways to run their economic course.

The essence of these inputs is to grow a core integrated, interoperable network from the inside outwards, rather than to attempt to grow such a network from disparate “networks,” from the outside inwards.

## 4 Conclusions

Africa’s present railway legacy is largely a spent force. It might continue as is for some while, but its sustainability has already been compromised—competence will remain below that of industry leaders, growth potential will remain stunted, and input costs for gauge related equipment, such as rolling stock, will attract a premium.

It is improbable that an integrated, interoperable network will spontaneously develop out of disparate networks. To expect that to happen is to lose sight of the entropy that is present in all works of man—they tend to degenerate rather than regenerate. It is necessary rather that stakeholders set about actualizing their vision, which is something only they can do, by using every opportunity to reposition Africa’s railways correctly.

If it does not leverage the forthcoming opportunities effectively, Africa will probably not get another opportunity to position its railways correctly. It needs to get back into the mainstream by trading wisely—by exchanging good natural resources for good railways (and also for other desirable economic and social goods).

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<sup>1</sup> That is, economically, and able to support applicable infrastructure standards.

<sup>2</sup> As a precursor to possible later full integration through interoperability.