Marketing Strategy of the HSST System

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ABSTRACT: One entry barrier of urban maglev technology into public transit is the lack of understanding. There are many common misconceptions regarding maglev technology, not just by the public, but sometimes within the public transportation community. Amongst these are: maglev is only for high speed, it is very expensive and, it is still experimental. Despite the various advantages that the HSST can offer, the HSST marketing team faced an uphill battle in promoting it. This paper discusses some typical difficulties we experienced in marketing the HSST and our approach to overcoming these difficulties.

1 HSST IS IN SUCCESSFUL OPERATION SINCE EARLY 2005

The Tobu Kyuryo Line of Nagoya, Japan commenced revenue service in March 2005. This is the first full scale commercial application of the urban maglev technology in the world. The Tobu Kyuryo Line adopted the HSST urban maglev technology developed by the Chubu HSST Development Corporation. Coinciding with the World Expo 2005 Nagoya, during its first seven months of operation since March 2005, the line was heavily utilized and carried about 20 million passengers within that period.

The operation has been safe and reliable. Despite some initial teething problems, no serious incidents occurred. In the early days, there were a few incidents that caused significant delays to the operation, but none of these were caused by design defects, and the extent of delay could mainly be attributed to inexperience in operation, which is common for any newly opened railways.

All those who have travelled on the system were impressed by the excellent ride quality and quietness of the operation. Despite its close proximity to residential buildings at some locations, no complaints have been raised by the nearby residents. The line passed all post-opening environmental reassessment conducted by the local government. The system reliability and robustness have been proven by the fact that though the Tobu Kyuryo Line was designed to carry 30,000 passengers per day, during the Expo period, it regularly carried somewhere between 90,000 and 120,000 daily. In the record high day, it carried 155,000 passengers.

With the successful application of the technology, HSST System International Inc., a company exclusively responsible for the marketing of the HSST outside Japan, has been working actively in promoting this technology worldwide.

2 HSST POSITIONING

Designed for low to medium capacity urban transit applications, the carrying capacity of the HSST system is in the range of 2,000 to 30,000 passengers per hour per direction. Depending on the actual system configuration, the HSST system can operate at headway as low as 120 seconds.

HSST offers high performance, all weather, environmental friendly and safe operation. Due to its

ability in climbing steep gradient and negotiate tight curves, it allow maximum flexibility in alignment design. As its operation does not depend on adhesion, it is not affected by weather conditions including rain, sleet, snow and in some countries, leaves. Due to the "wrap around" design of the module in relation to the guideways, there is no risk of derailment.

From a passenger perspective, the HSST offers more comfortable ride due to less vibration and extremely low interior noise.

Environmentally, comparing with its competing alternatives, HSST offers advantages of extremely low exterior noise and wayside vibration. This leads to least disturbance to the nearby residents. Due to the guideway's simple monobeam design, the HSST presents less visual intrusion than most other systems on elevated sections.

3 HSST OFFERS MANY COMMERCIAL ADVANTAGES

One major benefit HSST enjoys is the saving in the civil engineering cost in case of elevated construction, in comparing with conventional systems. In conventional systems, the vertical loads exerted on the guideways as concentrated loads through wheelsets. For HSST, the vertical loads are distributed evenly along the length of the vehicles due to the continuous module configuration. This allows for a slimmer design of both the columns and the viaduct, resulting is significant saving in civil engineering cost.

For the same reason HSST makes it easier if one would like to integrate stations with commercial development, e.g., one would bring the HSST stop right in the centre of a shopping mall, without worrying about causing disturbance to the occupants of the building.

Flexibility in alignment design could save project owners cost in land acquisition and building demolishing costs. The environmental friendly characteristics of the HSST allow the use of elevated instead of tunnel alignments even in congested urban areas, which could lead to huge saving in construction cost. Furthermore, due to its contactless operation, in comparing with conventional systems, HSST requires much less maintenance activities, hence lower maintenance cost.

4 GOOD FOR URBAN APPLICATION AND MORE

Due to its low noise, low vibration operation, and its ability to climb steep gradient and negotiate tight curves, HSST is ideal for urban application where city landscapes and topography pose great challenges to alignment design; and where stringent environmental regulations for noise and vibration apply.

As HSST operates up to 120 km/h, it is also ideal to be used as a link between airport and city centre with a traveling distance, say, within 50 km. The ability to run at high speed make it stays competitive time-wise with other road transportation system such as airport buses or taxi but on the other hand, due to its ability to operate within congested areas, can bring the air travellers right into the city centre much faster by staying away from usually congested road traffics.

Furthermore, the use of an advanced technology would help boost images of institutions that would like to portrait a futuristic, visionary image.

With the unique environmental friendly and "alignment friendly" characteristics of the HSST, combining its ability to operate at higher speed and its futuristic image, three major market segments have been identified. These are:

- Low to medium capacity urban transit systems (especially in congested city areas)
- People movers for airports, resorts and entertainment centers
- Links between airport and city centre

5 HSST IS A NEW ENTRANT

The market segments listed above are all currently occupied by different conventional technologies (see table below). These include: conventional steel wheel on rail vehicles either with rotary motors or linear induction motors (LIMs), rubber tyred automatic people movers (APM), monorails and cable cars.

Table 1: Market Segments Current Occupiers

	Technologies				
Market segments	Steel wheel on rail		APM	Mono-rail	Cable car
	Rotary motors	LIMs			
Low to medium capacity urban transport	**x**	**x**	**x**	**x**	
People movers at airports or entertainment centers			**x**	**x**	**x**
Airport link	**x**	**x**			

Our task is to convince the users that HSST is a good alternative, and in many cases, a better alternative, to these conventional technologies.

6 ENTRY BARRIER IS STRONG

Yet with all these distinct advantages that the HSST technology offers, marketing it has not been easy.

You mean urban maglev exist?

Sadly, apart from the maglev community, mass transit operators or planners around the world pay very little attention to the development of maglev technology. During our marketing activities in the past years, not many peoples we encountered are aware of the opening of the Tobu Kyuryo Line in Japan. The majority of the mass transit community still thinks that maglev is something works only in laboratories or on test tracks.

What is more surprising is that even some major international consultants engaging in railway or mass transit business have no idea of the existence of the HSST technology.

One of the authors once introduced HSST to a senior rolling stock person of a reputable mass transit operator which also provides consultancy in mass transit planning worldwide, but found out that person has actually ridden on the Tobu Kyuryo Line (as a visitor to the Nagoya Expo), but not knowing that the system is maglev operated.

To the general public, the high speed maglev system in Shanghai is much better known. Hence most peoples thought that maglev is only for high speed operation. Without knowing that urban maglev is available and the successful HSST commercial application in Japan, nobody has included such a technology as a candidate in their system planning.

This often leads to a situation that by the time we heard of a potential project and try to introduce HSST to the client as an alternative, it was too late for them to change course.

Skepticism remains

Even for those who are aware of the urban maglev technology, not many are keen to jump on board right away. They believe that proven technology means many years of successful operation, and with at least a few, not just one application. They do not intend to be the leader in adopting technology but would rather take a wait and see attitude.

We cannot afford maglev

Everybody thought that maglev technology is very expensive.

Japan is a very expensive country. Therefore, the total construction cost of the Tobu Kyuryo Line appears to be very high when comparing with projects outside Japan. This could easily scared peoples away despite the fact that, when comparing with similar capacity systems in Japan but using other conventional technologies, it is not high at all.

Fear of new technology

Lack of technical know-how is another area of concern as the clients (sometimes their consultants as well) feel that they would lose control of the project and is at the mercy of the supplier to tell them what is good for them. Despite the advantages of requiring less maintenance, some maintainers feel uncomfortable with new technology as they have to go through the learning curve again. They feel that maglev is a highly sophisticated technology and it would be difficult to maintain.

Technology Transfer and Local Content

Some countries have the "local content" rule. This specifies a certain percentage of the values of the project must be produced locally, and in certain places they even specify that certain core technology must be produced there. This is a great challenge to the HSST marketing team. Manufacturing a high portion of the system equipment locally makes it difficult to guarantee the quality of the product, and we might not be able to control the overall quality of the system to be delivered.

In some countries technology transfer is a prerequisite for getting a project. Needless to say, this is a highly sensitive issue. To make a balance between how much to transfer and how much to keep is not easy. Getting into an agreement that on one hand satisfying the desire of the host country in acquiring the technology; while on the other safeguarding from product spill back in the future is another difficulty one needs to handle.

Energy is becoming a bigger issue

This proves to be the most difficult issue to tackle. There is no denial that HSST uses more energy in comparison with conventional technologies. This was not thought as a big issue until recently, as the saving in maintenance is more than enough to offset the extra energy cost. However, with the recent surge in oil price, most clients are getting more concern that energy cost would be escalating faster than other costs, thus tipping the balance. Furthermore, as the world is getting more concern with global warming and more corporations, including mass transit operators need to go greener, energy consumption is becoming a critical issue, irrespective of its implication on the total operating costs.

Open technology system competition

In some countries government bidding regulations forbid specifying technology which has only one supplier. Although specifying "open technology" could be an option, most preferred not to do so in the belief that evaluating different technologies in a competitive tendering situation would be difficult. Technically, writing a set of specifications allowing for different technologies is not easy. Although most authorities would claim their specifications are performance based, the reality is that they seldom are and invariably the specifications would include a lot of design requirements which are unique to certain technology. This would become difficult if one is not familiar with the technology considered. In some cases government procurement rules simply forbid tendering with different technologies.

Some railway operators are concerned with their commercial position when comes to system expansion. They feel that even they can build the first system at a good price, when comes to system expansion, since no compatible alternative supplier exists, there will not be any competition and they are at the mercy of the original supplier.

The use of proprietary technology gives rise to the concern of the on-going support by the supplier, in terms of technical support and spare provisions.

Sometimes HSST cannot direct compete with others. As HSST offers more alignment flexibility which normally leads to saving in civil engineering costs, in one example, a potential client faces an interesting dilemma.

When comparing the HSST with other conventional technologies, the client realizes that a better alignment could be used because of its better grade climbing capability. However, the client needs to get the government's approval of the alignment long before the project is open for tender. If the HSST alignment is used, other technologies will not be able to compete. If the original alignment is used, the benefits of using HSST will not be captured. Furthermore, the client prefers to tender separately the vehicle system and the civil works. Can the civil work saving resulted from using HSST be reflected in the vehicle tender?

7 A COCKTAIL TREATMENT BUT NO PANACEA

Raising awareness is the foremost task of the team. Apart from advertising in trade magazines and exhibiting in trade shows, the marketing team takes a proactive role in bringing awareness to the relevant communities.

We have identified three targeted groups to work on. These are government offices responsible for transport planning, major consultants engaged in mass transit projects and existing transit system operators.

We provide presentations to these targeted groups to let them know about the existence of the HSST technology and, more importantly, correct those general misconceptions mentioned above about maglev. Presentation contents including differentiating urban maglev from high speed maglev, working principles of HSST, the unique characteristics of HSST in terms of grade climbing and curve negotiations, the contact less operation leading to low noise and low vibration; potential saving on elevated sections comparing with conventional technologies, and that HSST total system cost is not more expensive then conventional technologies. The reliability and operation experience of the Tobu Kyuryo Line in Nagoya is also discussed in order to convince the audiences that HSST is a mature and successful technology which has lots to offer.

We hope that by equipping these bodies with the knowledge of the HSST characteristics, when they are planning for new projects, they would be able to consider sensibly and rationally whether HSST would be a suitable candidate to include in the tender. In certain cases HSST's unique characteristics could even allow the consideration of a novel approach in formalizing a system. For example, a new international airport project is to include a people mover system. Instead of using a conventional approach, i.e., having the guideway totally segregated from the concourse area of the airport building, the client intends to build it right within the concourse with the guideways exposed to the peoples within the concourse. It would be unimaginable how conventional technologies, which are relative noisier and would generate a lot of dusts due to wheel/tyre wear, could fit in this kind of operation.

Seeing is believing. We invited many of these targeted groups to visit the Tobu Kyuryo Line in Nagoya, so that they can feel the technology first hand as well as having face to face discussion with the operator regarding operation and maintenance issues. The visitors are all very positive with what they saw and are convinced that the urban maglev has a role to play in providing new mass transit systems.

We work closely with mass transit planners by providing support in how HSST could enable them to improve on their alignment design and lead to project cost saving. This is particular important as through close working with potential clients, we would be able to optimize the running profile with a view to minimize energy consumption.

In terms of tendering, we also provide support for clients to enable them to tender with "open technology" as at the present moment this is almost the only situation where HSST could bid in a project.

8 TIME TO STANDARDIZE?

As mentioned, lack of competition is one of the reasons why clients are reluctant to adopt the urban maglev technology. Even though other urban maglev developers are ready or getting close to commercialize their products, a lacking of common standard, hence system compatibility when comes to system expansion remains a major obstacle for moving urban maglev forwards. This could be the time for different urban maglev developers (using similar technology) to seriously consider if there are ways to standardize some of the technology parameters, for example, configuration of guideways, so that different manufacturers could run vehicles on the same guideways just as the standard gauge for the steel wheel on rail technology.

9 OUTLOOK IS STILL BRIGHT

The successful operation of the Tobu Kyuryo Line in Nagoya is a solid proof of the HSST urban maglev technology. Despite the difficulties we have been facing, we are convinced that urban maglev technology will be the chosen land transportation system for the future. We will press on with the task to promote the technology. Our vision is that one day maglev technology will become a norm of mass transit technology. Just like any new invention, it will take time for the mass public to realize its benefits and for the nonbelievers to convert. However, once the entry barrier is broken, momentum will be gained, and the idea of urban maglev will flourish.

10 CONCLUSION

The successful operation of the Tobu Kyuryo Line confirmed that the HSST is a safe, reliable, economical and environmental friendly urban maglev technology available for many applications. Due to various reasons, marketing the HSST has not been easy, and the HSST marketing team has taken a proactive role in handling the various issues. The issue of standardization has been raised. Despite the current difficulties, the HSST marketing team is confident that the entry barriers would be broken soon and once that happen, the adoption of the technology by the public would become a reality.