

***Intelligent Transportation System (ITS)***  
***Planning Memo #3***  
***Possible Leadership Roles for RVAMPO in ITS***

***Introduction:*** This memo is the last in the series of three memos that the RVARC staff has prepared for the Roanoke Valley Area Metropolitan Planning Organization (RVAMPO) members concerning Intelligent Transportation Systems (ITS). This memo focuses upon the possible leadership roles the MPO could assume in the field of ITS. The roles the MPO can play in the Commonwealth's effort to develop an "ITS Architecture," range from aggressive to passive. Each position of leadership will be reviewed in terms of the costs and benefits to the MPO. The MPO's non-technical leadership role in ITS may yield benefits that are immeasurable.

***Background:*** At the September 26, 2002 MPO meeting the RVARC staff gave a presentation on ITS and the MPO's role in the process of its implementation. The best practices of ITS planning and implementation in MPOs similar to the RVAMPO, was introduced in the Planning Memo #1. Planning Memo #1 used two analogies to depict the impact of ITS. The first analogy compared the revolution computer technology had upon business to the potential revolution of ITS technology. The second analogy looked at the technological aspects of ITS as it relates to the economic development benefit of being on the cutting edge technologically. Planning Memo #2 focused upon a few of the emerging ITS technologies that could be used within the region. The application of ITS strategies provided an illustration of practical strategies and the operational benefits that could be achieved. Ascertaining the possible benefits of ITS can be modeled using techniques borrowed from the private business sector. This memo introduces the possible leadership roles for the RVAMPO through the use of business models. These models will provide a framework with which to review the advantages and disadvantages of various ITS leadership roles.

***Business Models:*** Business models provide a measurement by which an organization can gauge the potential advantages, disadvantages and risks of pursuing a course of action. Determining a course of action for the region by using a business paradigm is useful because, the degree of leadership in pursuing ITS technology is similar to leadership decisions on related economic development and planning decisions. . For example, a decision to pursue greater leadership in ITS could be similar to decisions to strengthen economic clusters such as: Optoelectronics, Technology Services and/or Advanced Manufacturing.

As an example, "Roanoke's MSA Optoelectronics cluster brings together a number of highly skilled jobs" (ICF Consulting, 1999, 43). Likewise, ITS technologies and implementation have the potential to create number highly skilled jobs to complement and leverage the gains in technology related economic development clusters. In order to determining how to tap into this potential wisely, the possible leadership roles will be reviewed using a *Strengths, Weaknesses, Opportunities and Threats (SWOT) Analysis* and the *Vision, Commitment and Management (VCM) Leadership Model*.

The *VCM Leadership Model* provides a visual perspective of the relative disadvantages of pursuing five proposed leadership roles for the MPO. The disadvantages of a leadership investment can fall into three major categories, vision, commitment, and management (Silbiger, 1999, p. 116-117). Balancing these characteristics (Figure 1) is important over the course of an undertaking. However, at any one given stage of the project one characteristic may take priority. The characteristics that are of the greatest importance at the beginning of a proposal are vision and commitment.



(Silbiger, 1999, 117)

Creating a vision for ITS by the RVAMPO necessitates an investment of political will to champion the ITS technologies. The commitment to follow through on the political will entail the commitment to set objectives and craft a strategy that incorporates the various stakeholders involved. The commitment to work with other organizations both governmental and private is crucial. The Fifth Planning District Regional Cluster Analysis produced by ICF Consulting (Regional Cluster Analysis) states “ensuring another generation of prosperity requires a collaborative approach which will promote a shared view and a common commitment to making progress” (ICF Consulting, 1999, p. 74). The commitment to making progress in the ITS field is one that involves a willingness to use both regional and local resources. Managing the resources of the jurisdictions, leading towards and of ITS implementation, will become a more significant component as the region explores ITS more and more.

Crafting a strategic plan to manage the implementation of ITS technologies is one of the tasks of strategic management. Presently, creating the vision for ITS takes priority. Forming a strategic vision for ITS is similar to the process undertaken when creating the “Regional Economic Strategy.” The “Regional Economic Strategy” is the region’s “game-plan” for positioning the [region] in the “new economy”, competing successfully, pleasing citizens, and achieving good performance. The strategy-making, strategy implementing process consists of five interrelated tasks” (Thompson & Strickland, 1998, p. 2-3).

### **Five Tasks of Strategic Management**

1. *Forming a strategic vision of what the organization's future tasks will consist of and where the organization is headed -- so to provide long-term direction, delineate what kind of enterprise the organization is trying to become and infuse the organization with a sense of purposeful action*
2. *Setting Objectives--converting the strategic vision into specific performance outcomes*
3. *Crafting a strategy to achieve the desired outcomes*
4. *Implementing and executing the chosen strategy efficiently and effectively*
5. *Evaluating performance and initiating corrective adjustments in vision, long-term direction, objectives, strategy, or implementation in the light of actual experience, changing conditions, new ideas and new opportunities.*

(Thompson & Strickland, 1998, p. 3)

Properly forming a strategic vision necessitates looking at where the region is and where it is going. This activity was undertaken in 2002 by regional business, administrative and elected leaders in conjunction with the Fifth Planning District Regional Alliance and Eva Klein Associates when developing the Regional Economic Strategy. A related study performed by ICF Consulting Economic Strategy Group in 1999 "The Regional Cluster Analysis" developed an in-depth SWOT Analysis. A SWOT Analysis looks at the strengths and weaknesses of an organization. Additionally it reviews the opportunities and threats it faces when embarking on a new endeavor. The analysis opportunities and threats of a leadership role provide a gauge for the potential for gain and risk of loss associated with a particular course of action.

**Levels of Leadership:** Determining the potential for gain and loss as well as the strengths and weakness of the region of each leadership role will be achieved using the SWOT methodology. The costs of each role in terms of vision, commitment, and management will also be reviewed.

**Very High:** A very high level leadership in ITS technologies provides the greatest potential for success. The potential for success from taking bold actions politically and technologically is exemplified by Portland, Oregon.

Portland in the late 1950s and early 1960s began to experience a loss of businesses and residents. To combat the population loss Portland and the surrounding communities began to regionalize. In the early 1980s the jurisdictions were co-operating on the implementation of zoning policies and transit technologies. The investment of capital both politically and technologically has brought recognition from around the nation and around the world (Abbott & Post-Abbott, 1991).

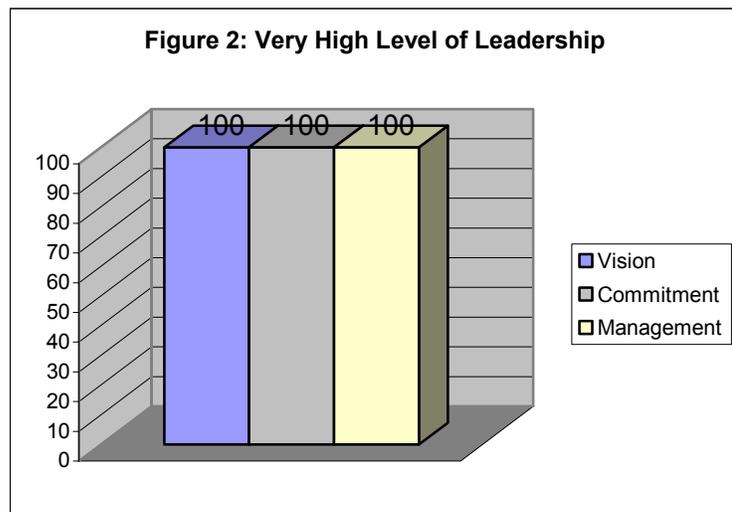
A similar investment of political and technological capital in ITS may lead to a similar level of success within the region. There are various threats to a high level of commitment and visionary leadership. The most significant threat is summed up in the familiar cliché "put your money where your mouth is." Presenting a bold vision and

maintaining very high level of commitment to that vision can be risky because of various technological and financial uncertainties. In an environment where every dollar counts there is also the possibility of not using the region’s resources in the most effective way. The lack of effectiveness would be caused by exploring flashy and/or large scale ITS technologies that do not exactly fit the region. Furthermore, exploring too many alternatives at once poses a the risk of spreading ourselves too thin.

Mitigating all of these risks would be an intricate venture. It will require staff time both locally and at the MPO level to explore funding sources. Meanwhile, the local and MPO personnel will have to remain abreast of ITS proceedings to take advantage of funding opportunities when they arise. Furthermore, many of the funding possibilities will require a local match.

Although the costs for a very high level of leadership are great, the rewards for such a level of leadership are possibly greater. The possibility for greatness is there if the region can commit the capital costs in both monetary and politically. The costs of a very high leadership commitment when compared to other levels of leadership can be visualized by comparing figures 2,3,4, and 6. The scale of vision, commitment, and management are representative of levels necessary needed to maintain a very high level of leadership over the next few years.

Attaining these very high levels of vision, commitment, and management over the next few years would undeniably demonstrate that the region is moving towards the tenets of the Regional Economic Strategy. The Regional Economic Strategy focuses upon “the new infrastructure paradigm—now more important than the physical infrastructure of roads, rail and ports—consists of people resources and innovation from research” (Fifth Planning District Regional Alliance, July 2002, p. 1). Innovation and research are an integral part of creating an ITS system. Consequently pursuing ITS will work towards building the people and knowledge resources of the region. Meanwhile, it would aid “old” economy business of the region that rely on efficient transportation systems.



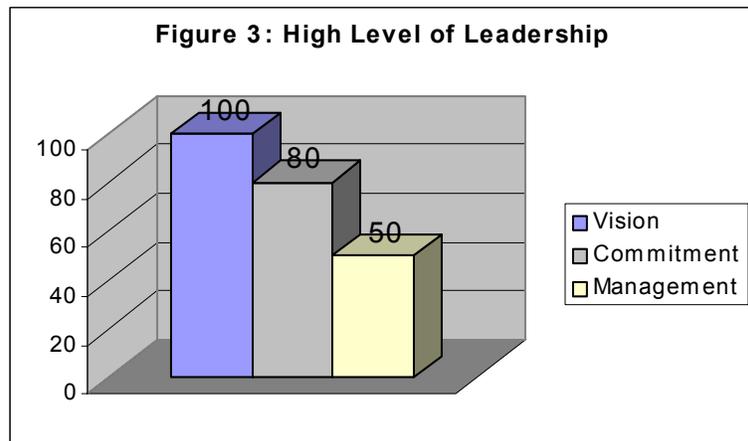
**High:** Creating an efficient transportation system with ITS in combination with other strategies is the precept behind a high level of leadership. A high leadership level would show that the RVAMPO is dedicated to wisely taking advantage of new technological opportunities. Actively seeking out new ideas and concepts is a principal the region is already committed to. The Regional Alliance acknowledges, “ we must build upon our

assets and set a course to create new ones” (Fifth Planning District Regional Alliance, 2002).

The region’s commitment to the targeted goals stated in the Regional Economic Strategy is a strength, because has shown its the ability to wisely pick and choose strategies that apply to the region. The fact that these strategies have already been created and widely adopted by public and private entities alike is also strength. The MPO can easily eliminate some ITS concepts, which may not contribute to the stated goals and strategies, outlined in the Regional Economic Strategy.

Prudently pursuing ITS reduces the risks of a very high leadership level. Although the risks remain, the potential for benefit is nearly equivalent to the higher level of leadership. Taking an active role in pursuing applications that fit the region may yield the same results as pursuing all applications.

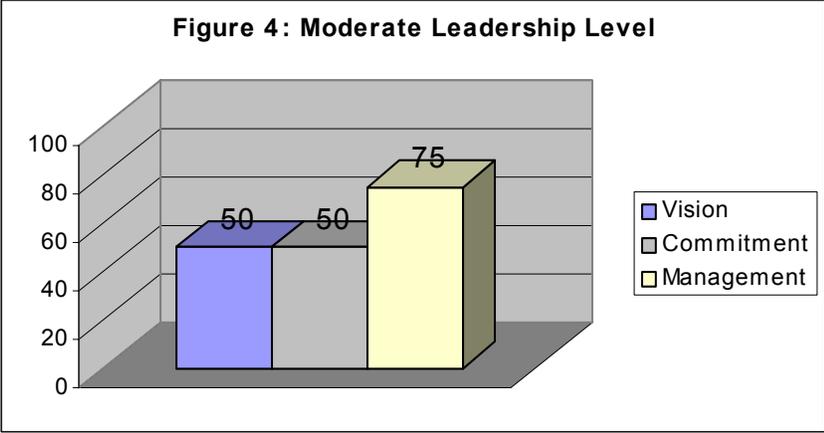
Attaining similar results would still require a very high level of vision over the next few years as seen in Figure 3. Meanwhile, the MPO must visibly show that it is committed to the vision it creates. The MPO also has be able sustain a moderate level of management to keep up to date with ITS technologies and practices.



**Moderate:** A moderate to high level of leadership would still be necessary to show that the MPO is seeking wise investments in ITS. This moderate leadership level would allow the MPO to watch and explore ITS systems, while using the region’s assets prudently. This moderate approach would build upon the infrastructure the region currently has. Focusing upon enhancing the regions transportation system is both a strength and a weakness. The strength of using what we have is that reduces the risk of overextending resources further down the road.

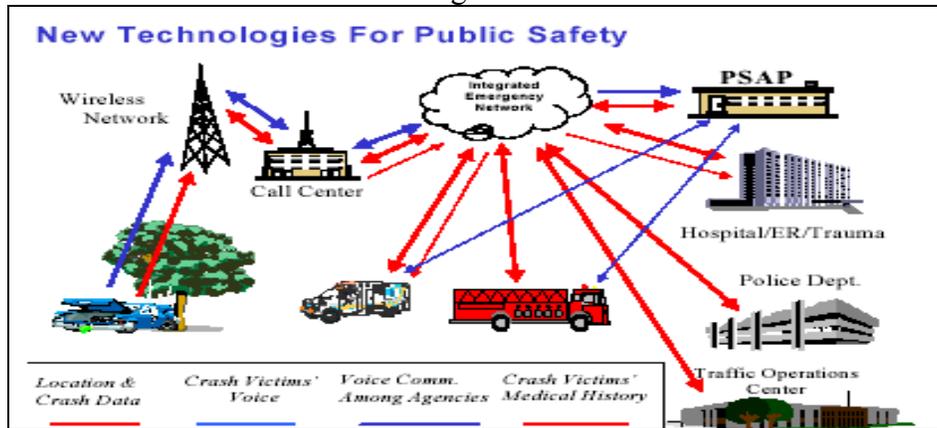
As ITS development proceeds around the country the MPO may not have built up enough support to implement the findings of the management activities. Furthermore, without the firm vision and commitment ITS projects run the risk taking a back seat, both politically and fiscally, to many of the other transportation projects.

If the MPO and its member governments were not able to fully commit to ITS research and development the region may face the prospect of being surpassed by other regions of similar size. “We must examine ourselves as the outside world sees us, not just as we see ourselves” (Fifth Planning District Regional Alliance, 2002). The threat of being left behind, as other regions seek out and implement ITS, could be offset by an opportunity provided by this leadership level. The RVAMPO has the opportunity to take the lead for a few particular aspects of ITS technologies and operations. Taking advantage of this opportunity would require a significant amount of leadership in terms of management, Figure 4. Current and future resources would have to be managed in order to implement lessons learned from other areas quickly and effectively.



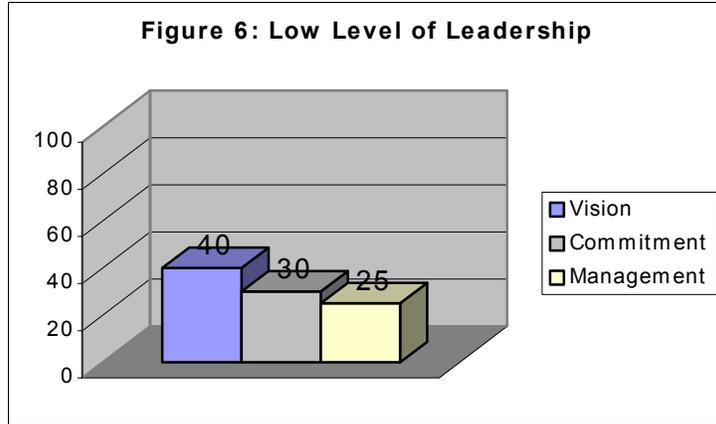
**Low:** Falling behind other regions presents the greatest risk of low level of leadership. Already RVAs neighbors are seeking ITS technologies. “An initiative led by the Northern Shenandoah Valley (NSV) Steering Committee, began three years ago as an effort to improve highway safety and the response to crashes and hazardous material spills along the state's Interstate 81 corridor, could become a model for interoperable communications for first responders in other rural regions” (Sarkar, 2003, June 20)

Figure 5



(ComCare Alliance, retrieved June 13, 2003)

The low level of leadership (Figure 6) approach could keep the MPO aware of ITS successes in other regions. Merely keeping up to date would be precarious when the decisions to implement ITS systems were to be made. The MPO would be aware of the technologies and practices it would possibly desire. However, the MPO



would lack the knowledge of where to find funding and how to obtain it. Additionally, the MPO would lack the knowledge of specific technologies and the players in the ITS field. The consequence of the lack of knowledge would be lost time. While the MPO and its member governments started getting involved in ITS, other regions will far ahead. As other regions surge ahead the RVAMPO can learn from their failures and successes. The benefit of others knowledge may not outweigh the cost of falling behind the times. Additionally, a lack of commitment to ITS, due to many technology's public and visible nature, may serve to counteract and contradict other technology related economic development goals and marketing programs. After all, would a high tech firm consider relocating to a region that was not visibly committed to technology?

**Very Low:** The phrase “nothing ventured nothing gained” typifies this strategy. This cliché does not fully depict the impact of this approach. The weakness of this leadership course is that it does not leave the RVAMPO in any position to play catch-up as other communities are actively pursuing ITS. This leaves the threat of the region slipping behind technologically and runs the risk as being viewed as behind the times. Although this strategy is labeled “Very Low” is should not be misinterpreted as a “low risk” strategy. Indeed the risk of doing nothing is likely a greater risk than pursuing all ITS strategies with abandon as in the “Very High” scenario.

**Strategic Fit:** The development and implementation of Intelligent Transportation Systems (ITS) adheres to the vision and goals that have been set at a regional level. Intelligent Transportation Systems compliment many of the projects on recent work programs. Moreover, ITS improvements reflect the goals of the region set forth in the *Regional Economic Strategy*.

The 2003 and 2004 Comprehensive Work Programs reflect the direction the region desires to go toward the future.



Many of the activities would benefit from ITS when implemented. The purpose of *Safety Conscious Planning* is to plan a safer transportation system. ITS techniques such as Electronic-911 technologies is just one of the many systems that work toward improved safety.



Improved public safety works toward improving the region’s quality of life. Travel has been made easier for the region’s citizens by the implementation of Virginia 511 system. Currently Virginia 511 is expanding to incorporate ridesharing. Informing the traveling public about their commute options and delays along their route works towards the goal of improving the “reliability of intra-regional and inter-regional transportation” (5<sup>th</sup> PDC, 2002, p. 6).

Providing information about traffic conditions is not the only way ITS can improve the reliability of the transportation systems. ITS can be used to time traffic signals to keep traffic moving efficiently. The efficient movement of traffic has benefits beyond the goals of the Economic Development Strategy. Efficient traffic flow, through less idling, reduces emissions, which is an objective of the Early Action Compact.

Benefits to air quality is just one of the multitude of ways that ITS fits with the regions goals. Achieving the goals of the region, by incorporating ITS will help to craft an image of the region and “...establishing the region as a desirable location for living, visiting, and doing business” (Fifth Planning District Regional Alliance -, July 2002, p. 5). Creating and promoting this image will take vision and leadership.

**Recommendations:** Staff recommends the MPO adopt a leadership role similar to the “High” scenario presented in this memo. This style of leadership will avoid some of the leadership risks associated with the “Very High” scenario, while ensuring a proactive leadership that compliments and perhaps multiplies related efforts concerning the Regional Economic Strategy. The “High” level of leadership will require commitment by the MPO as a whole and leadership and perhaps resources from individual localities through their representatives on the MPO. This level of leadership will likely help the region to achieve “Above Average” success in the areas of transportation efficiency, transportation operations, cost savings from reduced traditional infrastructure expenditures, and “good will” benefits from developing a reputation as technologically friendly.

The recommended combination of vision, commitment, and management from the MPO’s perspective is seen in Figure 7. Vision takes priority presently because it is the most significant portion of



the first of the Five Tasks for Strategic Management. Forming a strategic vision that reflects the goals of the Regional Economic Strategy is the first crucial step towards ITS in the region. The importance of creating a vision is to provide long-term direction for ITS.

To compete successfully for advanced technology growth the MPO, will need to - and coordinate resources for ITS implementation. The MPO and its partners will have to leverage some of their resources to conduct further research into ITS applications. As the MPO becomes more involved with ITS, more resources (both financial and human resources) will need to be dedicated to this task.

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