Vision and Scope Document

For

Networked Digital Signage

Version 1.0 approved

Prepared by Team D Technologies Group

Jeff Ventrano

Chris Laughery

Sandor Szanto

October 11th, 2009

Table of Contents

Revision History

Name	Date	Reason For Changes	Version
Jeff Ventrano	09/27/2009	Submitted original Project Idea for approval.	0.1
Wayne Smith	09/27/2009	Project approved by Professor.	0.2
Jeff Ventrano	09/27/2009	Submission of Business Practitioner information.	0.3
Brett Pfingston	09/27/2009	Acceptance by Business Practitioner via email.	0.4
Chris Laughery	10/04/2009	Creation of initial Vision/Scope Document.	0.5
Chris Laughery	10/10/2009	Integrated additions/changes by team members.	0.6
Brett Pfingston	10/11/2009	Review of document, provision of feedback.	0.7
Jeff Ventrano	10/11/2009	Integration of feedback from Business Practitioner.	0.8
Jeff Ventrano	10/11/2009	1-3-2: Final format for submission.	1.0
TBD	TBD	Integration of feedback on 1.0 from Professor.	1.1
TBD	11/01/2009	1-3-4: Status Report 1 Submission	2.0
TBD	TBD	Integration of feedback on 2.0 from Professor.	2.1
TBD	12/13/2009	1-3-6: Project Write-Up Submission	3.0
TBD	TBD	Integration of feedback on 3.0 from Professor.	3.1

1. Business Requirements

Ivy Tech Community College (hereafter referred to as "Ivy Tech") is seeking a means of providing instant and graphically appealing information to its students via a Networked Digital Signage solution. This type of communication medium is one that other universities and businesses are now utilizing to push out information to multiple television monitors networked in strategic locations and allows responsible personnel a centralized management interface accessible via computer, web, or PDA device.

Ivy Tech Administrators have requested the delivery of a Vision and Scope document from the Team D Technologies Group (hereafter referred to as "TDTG") that purposes the requirements, costs, and timeframes involved in the completion of such a project. The remainder of this document attempts to address these items.

1.1. Background

Ivy Tech Community College is the nation's largest state-wide community college with single accreditation and is the largest public post-secondary institution in the state of Indiana. The college currently has 23 campus locations throughout the state, serves more than 130,000 students a year, and maintains an average class size of 22 pupils (About Ivy Tech, 2009).

In support of its 2010 re-accreditation by the Higher Learning Commission, Ivy Tech has produced a multi-stage Strategic Plan that includes the goal of providing better communication and information distribution to its educators and students at a regional level. Current technologies in use for the distribution of information currently includes printed and web based media only, but some campus locations are outfitted with computer monitors connected to localized computers. The college would like to build upon this idea through the creation of a Networked Digital Signage System that can be managed at a centralized location.

1.2. Business Opportunity

Students and staff of colleges and universities expect their chosen institutions to provide them with not only the best education available, but to do so in an environment that is conducive to learning, that use the latest technologies and processes available, and to do so at a cost that is both affordable and reasonable by general public.

It is the opinion of Ivy Tech Administrators that the creation of a regional communication system will assist in the attainment of these goals by providing up-to-date information on classes, scheduling changes, weather alerts, and campus events such as visiting lecturers or sporting events. A centralized interface for the management of the communication system will allow for the distribution of information in an easy, standardized, and more affordable manner.

1.3. Business Objectives and Success Criteria

By providing a Networked Digital Signage System, Ivy Tech will be able to communicate with its staff and students at all campuses in a quicker and more cost effective way. Through the use of latest technologies and at a low cost, the college seeks to promote itself as a communicative, technologically proficient, and affordable learning institution.

The objective of this document is to spell out the technologies, steps, resources, and costs associated with such a system, and to provide details on both the timeframes and risk factors involved with the suggested solution. Finally, the measurable objectives that will be used determine whether this document has successfully fulfilled the Ivy Tech requirements will include the provision of:

1) Suggested hardware, networking, and software technologies to be used.
2) Network and Hardware diagrams for purposed regional solution.
3) Configuration specifications for software and network related items.
4) Project Plan with detailed objectives, timelines, and resource assignments.
5) Cost break-down and analysis of purposed solution.

1.4. Customer or Market Needs

The primary means of distributing information to the students and staff Ivy Tech is currently limited to printed or web/email based technologies. While these technologies are sufficient when communicating standard types of college related information such as course registration or assignments, a more immediate, diverse, and easily managed means of providing last minute schedule changes, weather updates, or campus events is required to ensure the highest level of dissemination.

Unlike traditional email, web and print notices, a Digital Signage solution will provide this means of quickly delivering dynamic message content, including multimedia media, via a cost effective content management system.

The Digital Signage solution also captures the attention of viewers wherever they gather, such as in lobbies, break rooms, or study areas. Because communications can be delivered to any number of display types, including plasma, LCD, and television, the configuration possibilities and locations are numerous (Visix –Axis TV Product, 2009).

1.5. Business Risks

In this section of the document, TDTG has attempted to identify possible risks associated with the completion of the Ivy Tech project, rated those risks into the categories of HIGH, MEDIUM, and LOW, and provided mitigation plans to help reduce the chance of the risk occurring.

Definitions of Risk Categories can be defined as:

HIGH	Chance of risk occurring is high, level of mitigation must be critically considered.
MEDIUM	Chance of risk occurring is medium, level of mitigation should be seriously considered.
LOW	Chance of risk occurring is low, level of mitigation should be moderately considered.

Possible business risks, the estimated risk level, and the suggested mitigation of each are defined as follows:

Risk	Level	Mitigation
Delay in project timelines due to hardware configuration issues.	Low	Delays in timelines due to hardware configuration issues will be mitigated by proper and thorough testing of all equipment prior to delivery and installation.
Delay in project timelines due to software configuration issues.	Medium	Delays in timelines due to software configuration issues will be mitigated by meeting installation requirements, following proper installation instructions, providing detailed and complete documentation, and through thorough training of administration staff.
Delay in project timelines due to scope change or improperly defined requirements.	Medium	Delays in timelines due to scope changes and improperly defined requirements will be mitigated through detailed analysis, documentation, testing, and agreement between all involved parties on project vision, timelines, resources, and cost prior to installation.
Message system degradation by electronic interference.	Low	Degradation of the Networked Digital Signage system due to electronic interference will be mitigated by digital analysis of external signals in the target installation location prior to positioning, through use of adjustable frequencies, and heavily insulated network cables.
Networked Digital Signage system compromised by hackers.	Medium	Chances that the system will be compromised by hackers intent upon broadcasting improper content will be mitigated through secure access at the back-end and front-end levels.

Risk	Level	Mitigation
Communication Loss between campus locations.	High	Communication loss between system components at varying campus locations can be mitigated through use of redundant connectivity with two (or more) Internet Service Providers.
Power Loss to Network Digital Signage equipment.	Low	Power loss, which makes equipment inaccessible and can sometimes cause damage or data loss when removed improperly, is not completely preventable, but risk can be greatly reduced through use of Uninterruptable Power Supplies.

2. Vision of the Solution

The solution purposed by TDTG will address Ivy Techs desire to augment and enhance their current communication methods through the addition of a visual system that will make the distribution of information across disparate regional campus locations both quick and easy.

An overview of the high-level hardware and networking configuration for the purposed solution is shown in Image 1 below:
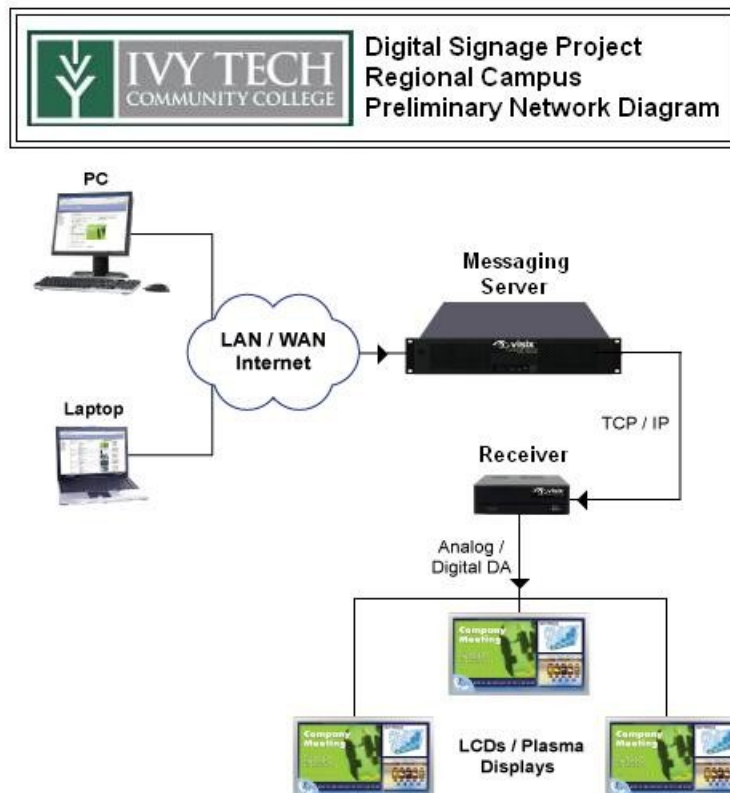
Image 1: High level network overview.

The solution will provide the ability of Ivy Tech to share sophisticated multimedia presentations that enhance campus life by engaging and informing students & staff about the many details of residential life, social and athletic programs, administrative announcements, and promotions from retailers.

Ivy Tech will be able to tailor the solution to their unique needs, delivering targeted messages and media to specific campus locations, no matter how geographically dispersed, and offers various backgrounds, templates, and fonts from which to create effective and eye-catching displays.

2.1. Vision Statement

The mission of the Team D Technology Group is to directly address client communication needs by providing innovative and powerful technologies that are easily accessible, highly configurable, and that can deliver information in a visually appealing way to the largest possible audience.

2.2. Major Features

TDTG shall furnish the equipment, accessories and materials listed below for the proposed solution. Final solution will include installation and configuration of the new system and be delivered within the following specifications:

- Electronics, computer hardware, software and associated materials/documentation.
- Flat Panel Television Displays:
  - Three industrial (3) 52" LCD flat panel displays per regional campus.
  - Three LCD wall mounts that allow for 15 degrees of downward tilt.
  - Two speakers per LCD monitor and mounting kits.
  - Installation of LCD's and Speakers in the corridors and commons areas to be defined by Ivy Tech.
- Visix Messaging System:
  - Software Installation & Verification:
    - Connection of messaging components to network environment.
    - Verification of basic operation of the system & messaging components.
    - Training of system administrators on installed configuration.
- Extron TP Receiver
  - One Extron Mini Twisted Pair Receiver per HDTV installation location.
  - One Extron Ethernet Control Interface per HDTV installation location, including:
    - A high performance Web server
    - Integration of IP connectivity with A/V system
    - Remote control and monitoring of the display
- Extron TP Transmitter
  - One Extron Mini Twisted Pair Transmitter per regional installation location.
  - One 6ft. CAT5 UTP Network Patch Cable

- Distribution Amplifier
  - One Extron Distribution Amplifier per regional installation location.
  - Six 6ft. CAT5 UTP Network Patch Cables
  - One 10 Port Network Patch Panel

2.3. Assumptions and Dependencies

As a cost saving measure, Ivy Tech has agreed to be responsible for the installation of all CAT5 network connections at each installation location. Each display will require a CAT5 connection and cabling run from the monitor location to the centralized messaging server and the messaging server itself will require a connection to the schools data network.

Ivy Tech will provide necessary computer hardware for running Digital Signage software components that meet the minimum pre-defined system requirements.

Ivy Tech will be responsible for the ongoing maintenance and configuration of all Networked Digital Signage components.

Additionally, Ivy Tech has agreed to provide the AC power necessary to operate all equipment at the designated installation locations, including monitors, servers, transmitters, and receivers.

Installations will be scheduled Mondays through Fridays and between the hours of 7:00 AM and 6:00 PM, at the discretion of Ivy Tech. The college will ensure that installation locations are made exclusively available to TDTG personnel during scheduled installation times.

Ivy Tech will provide adequate parking for TDTG vehicle(s) in relative proximity to installation locations, ensuring conducive access to tools and supplies throughout the scheduled timeframe.

Once signed for by an authorized Ivy Tech representative, the campus will assume responsibility for the storage and protection of any and all equipment delivered prior to a scheduled installation.

3. Scope and Limitations

The TDTG will, as a part of the initial Digital Networked Signage system release, be responsible for the installation and configuration of all system components including messaging server, monitor displays, receivers and transmitters, as well as for the training of pre-appointed Ivy Tech administrative personnel.

3.1. Scope of Initial Release

A detailed description of initial release check-point items to be considered for each regional campus installation includes:

- Installation and configuration of Digital Networked Signage equipment.
- Validation of network connectivity between messaging servers and monitor displays.
- Creation of two predetermined user accounts mapped to default administrator roles.
- Installation and configuration of software components on pre-selected Ivy Tech computer systems meeting predefined hardware & software requirements including:
    - Message Publisher & Server Manager
    - Desktop Messenger & Manager
    - Screen Saver Publisher

3.2. Scope of Subsequent Releases

If desired, subsequent phases of the Ivy Tech Networked Digital Signage project can be designed and purposed by TDTG that may address future requirements such as:

- Installation and configuration of annual message system software updates.
- Expansion of signage system thru addition of more monitors or regional campuses
- Creative collaboration to design custom graphics, core templates, and/or seasonal themes.
- Installation and configuration of additional network functionalities such as:
    - Streaming information to email inboxes, text messages, and/or RSS
    - Content control via remote wireless equipment including laptops and PDA's.
    - Local weather, news, and stock feed integration

3.3. Limitations and Exclusions

Limitations of work to be completed by the TDTG within the agreed upon project scope due to legal, physical, and/or technical reasons are detailed as follows:

- Installation of hardware/software other than that defined within the scope of this document.
- Construction or modifications to walls, ceilings, or millwork at installation locations with the exception of mounting brackets as defined within this document.
- Modification to or support of network cabling or interfaces required for installation.
- Configuration, testing, or maintenance of Internet Service Provider connectivity.

4. Business Context

Ivy Tech has used traditional call lists, emails, web sites, and print notices as a means for distribution of necessary information campus-wide, but has realized that this not an effective way of quickly delivering dynamic messages or important announcements in a near-real-time basis. Nor are these delivery options the most effective way of relaying messages informing the student body, faculty, and visitors of campus critical safety or security related news.

To elevate Ivy Techs' communication abilities requires a content management and delivery system that can be easily deployed to all regional campus locations, be simple to manage, and be controlled from a centralized computer. The digital signage media technology meets these requirements easily,

and when strategically placed, will allow for the scheduled or immediate deployment of campus news.

4.1. Stakeholder Profiles

Stakeholder	Major Value	Attitudes	Major Interests	Constraints
President, Dean & Department Heads	Distribute notifications and post awards lists	See signage as avenue to alleviate manual notice methods	richer feature set than existing methods; deployment time is minimized	Costs to install and maintain
Registrar	Notify students of new classes	Another avenue to reach students	Notify those students that normally are only present occasionally	
Library	Advertise new resources	Interested in posting changes	Rich distribution medium.	
Finance Office	Increased revenue	Post deadline reminders	Potential additional revenues.	Not useful for personal messages.
Marketing & Bookstore	Sales & Marketing Distribution	New medium for ad's to generate revenue	Faster delivery to wider audience.	
Faculty	Informed students.	Interested for students benefit.	Ability to post office hour changes.	
Student Organizations	Ability to post notices	Exciting notification medium	Advertise meetings and scheduled functions.	Requires faculty to post to medium.
Student Body	Up to date information	Unique information board.	Ability to distribute information to broad audience	Only located in one or two places. (i.e.: cafeteria)
Prospective Students	Incentive to enroll	It's cool and high-tech.	Able to get schools flavor quickly	

4.2. Project Priorities

Dimension	Driver	Constraint	Degree of Freedom
Cost	Reasonable total cost of ownership and maintenance costs	$15,000 Budget	Minimal overage permitted for in-house required labor and materials.
Functionality	IT must test prototype and be fully trained.	Limited to availability of resources and AXIS representative.	When installation complete remote locations may be tweaked immediately after.
Schedule - Ivy Tech Commitment	Installation of outlets, cabling, and TV mounts .	Must be completed before AXIS system can be installed.	If main campus complete, installation can begin while remote facilities are finished.

Dimension	Driver	Constraint	Degree of Freedom
Schedule – Outsourced	Contracted installation date.	Limited only by contract.	May be rescheduled if necessary.
Staff Training	Once system installed and IT staff trained.	Limited to present IT staff and administrator	Permitted to train faculty after installation completed

4.3. Operating Environment

The Ivy Tech Networked Digital Signage system will initially be limited to (3) 52" LCD flat panel displays in the predefined installation locations by regional campus. The displays will be installed on tilting wall mounts that allow for 15 degree downward tilt and attached to 3/4" plywood backer approximately 2' x 3'. Ivy Tech maintenance staff must install appropriate electrical outlets and run the cabling necessary for the digital signage system before the actual installation can begin.

Network cabling for the Ivy Tech system must be of grade CAT 5 or higher, and a home run to the messaging server location is required. Messaging server will be rack mounted to allow for easy connectivity into the schools domain network. Ivy Tech network domain policies should be pre-evaluated to ensure compatibility with the digital signage software and network connectivity must be granted to configured digital signage administrator accounts.

Once installation has been completed, all connections and digital signage equipment will be thoroughly tested for functionality, and during this time, the IT staff and an administrative representative will be trained on the proper usage of the messaging system. When fully functional, TDTG will train pre-selected Ivy Tech system administrators on the digital signage application interface, and with the various content management components.

All network components, network cabling and system hardware should be installed in protected & secure environments to prevent the system from being tampering with and in order to prevent unauthorized access. The messaging server and amplifier equipment will receive power from an appropriately rated UPS and battery-backup power source.

All original system manuals, software media, and configuration documentation shall be delivered at the time of installation and should be stored in a protected location where it can be easily retrieved.

5. Human Resources

Knowing that the completion of this project is a high priority within the next three month, TDTG has outlined the various ways it intends to handle organizational or behavioral issues within the team in the sections that follow. Section 5.1 describes how TDTG will be organized, while Sections 5.2 and 5.3 outline mitigation plans for handling personality related issues.

5.1. Team Charter

How will the team be organized?

Recognizing that this team has many talents, educational backgrounds, and skill sets, TDTG has decided to manage the project using one Project Leader and two Project Team Members. Work assignments have been broken down by type and page, and each team member is responsible for their area of expertise as assigned by the Project Leader.

When there is no consensus on how to proceed, how will decisions be made?

The business practitioner "Brett Pfingston" will provide this team with the guidance needed in such a case.

When someone is not fulfilling individual commitments or abiding by the agreed upon ground rules, how will that be addressed so that the project does not suffer?

TDTG has decided that the best way to ensure a successful project is through team work and division of work by technical skill set and proficiency. It is understood that team members may encounter scheduling conflicts or unexpected delays due to issues outside normal control, but has also set the expectation that each person contribute to the very best of their ability. In the unlikely case that a team member is unable to meet these requirements during the course of the project, it will be reflected in the team evaluations due throughout the assignment. Other team members will take on the additional responsibilities to ensure that the project is completed successfully.

How will the team deal with personality differences to ensure project goals are met?

The project team is in agreement that, as adults, we should all have a good understanding of different personality types and of how to handle conflict. In the unlikely case that personality differences impact the project, the team has agreed to let the Project Leader handle the situation as he sees fit on a case by case basis. TDTG does not foresee any personality issues impacting the project.

5.2. Technical Skills and Attributes

Name	Skills	Attributes
Jeff Ventrano	Project Management	Well-versed, experienced, and detail oriented.
Chris Laughery	Programming & Database Technologies	Accomplished, professional, and judicious software specialist.
Sandor Szanto	Networking & Security	Expert, skillful, and seasoned technologists.

5.3. Roles and Responsibilities

Name	Role	Attributes
Jeff Ventrano	Project Manager	Oversee project timelines, communicate directly with clients, validate milestones, resource management, and billing & payment facilitation.
Chris Laughery	Programmer	Develop user interface(s), configure relational backend, application documentation, conduct User Acceptance Testing (UAT), and Training.
Sandor Szanto	Network Specialists	Integration and configuration of network systems, monitoring tools, and administration of overall user/network security.

5.4. Communication Strategies

TDTG will utilize e-mail as their primary means of communication and to ensure project timelines do not slip, the team has agreed that all email messages will be checked and responded to within a 48 hour period. When project specifics require more direct communication methods, then utilities such as FranklinLive!, chat rooms, and personal cell phones will be used.

6. Project Management

This section of the Vision and Scope document intends to document the actual deliverables defined within the phases of the project proposal, the dependencies that must be finished prior to installation in order for the project to be completed successfully, and the actual project schedule and timelines.

While the scope of the Ivy Tech Networked Digital Signage project may seem overwhelming at first, TDTG has completed several of these types of projects for other satisfied customers without issues or delays in project timelines. TDTG is confident in its ability to provide the stated deliverables and to meet the customers' requirements within the given time frame.

6.1. Deliverables

As a part of the Networked Digital Signage project for Ivy Tech, TDTG offers its services as related to the Planning, Design, Installation/Configuration, and Documentation. Specifically, TDTG will provide the following service items:

Project Stage	Description
Planning	Review of existing Ivy Tech network configuration.
	Review of purposed installation locations.
	Develop installation and configuration plan per requirements.
	Research and discuss alternative solutions.
Design	Physical network design and configuration.
	Message Server and receiver equipment configurations.
	Message Server application component configurations.
	Hardware naming conventions (Servers, Receivers, & TV's).
Installation	Physical installation and configuration of hardware.
	Physical installation and configuration of messaging software.
	Testing of messaging system.
Training	Training of Infrastructure / IT Personnel
	Training of Messaging Application Administrators
Documentation	Completed Project Plan
	Detailed Hardware & Software Specifications Listing
	Detailed Bill for Services & Equipment Rendered
	Hardware & Equipment Documentation
	Software Manuals & Installation CD's
	Network Topography Diagram

The project will be measured by whether or not the above items have been delivered to Ivy Tech within the agreed upon project timelines.

6.2. Dependencies

To implement the recommendations provided in this document, Ivy Tech shall be responsible for completing the following dependencies:

- Supply and installation of all 115V wiring for AV requirements.
- Supply and installation of any junction boxes, wall boxes, conduits and floor boxes needed for AV connection.
- Supply and installation of all necessary wall backing or structure for plasma, speakers, recessed screens, etc.
- All necessary permits and fees to conform to state and city building codes.
- Telephone and data network for audio or videoconferencing.
- Supply and installation of phone lines, related to connection of video teleconferencing system to IVY Tech network.
- Network should be in place and tested one week prior to equipment installation.

6.3. Schedule

Based upon an immediate start date once accepted by Ivy Tech, TDTG estimates the project plan phases, tasks, and timelines as follows:

Task Name	Start Date	Finish Date
Vision and Scope Document	Wed 9/30/09	Sun 10/11/09
Establish Business Practitioner	Sun 9/27/09	Sun 9/27/09
Research Phase	**Mon 10/6/09**	**Sun 10/26/09**
Revise V&S Document	Fri 10/10/09	Sun 10/26/09
Identification of required hardware and software	Mon 10/4/09	Thu 10/8/09
Research potential configurations and TV placements	Fri 10/9/09	Fri 10/16/09
Status Report 1	Mon 10/19/09	Sun 10/25/09
Design Phase	**Mon 10/26/09**	**Tue 11/1/09**
Axis Server setup recommendation	Tue 10/27/09	Tue 11/1/09
TV setup recommendation	Tue 10/27/09	Tue 11/1/09
Revise V&S Document	Fri 11/6/09	Sun 11/15/09
Status Report 2	Mon 11/16/09	Sun 11/22/09
Finalization Phase	**Tue 11/17/09**	**Sun 12/13/09**
Revise V&S Document	Sun 11/22/09	Fri 12/4/09
Recommendation Rough Draft	Tue 11/17/09	Sun 11/29/09
Final Recommendation	Mon 11/30/09	Sun 12/6/09
Project Write-up	Mon 12/8/09	Sun 12/13/09
Project Presentation	Mon 12/8/09	Sun 12/19/09

7. Educational/Program Outcomes

The conclusion of this project will allow Ivy Tech the ability to reach out and disseminate to the majority of its students and staff types of information that could be vital for the success of institution. The purposed solution will give Ivy Tech the ability to publish information related to day-to-day operations, distribute critical scheduling changes, alert personnel in emergency situations, and do so in a secure, networked, and highly configurable way across multiple campus locations. The system is expandable, protected from intrusion and interference, and uses the most current and sophisticated technologies available today.

7.1. General Education

The project proposal presented by TDTG will meet each of the General Education outcomes and measure success in the following ways:

- Effective communication of scope and vision for mid-range sized project encompassing Management, Infrastructure, Security, and Development components.
- Analytical and critical thinking skills used to solve given project requirements including the definition of business requirements, possible solution, project scope and limitations, business context and gains by project acceptance, proper resource management, and completing project within given timelines.
- Evaluation of possible technologies and application to given project, taking into account potential for growth and level of technical skill of given client.

As a part of the Networked Digital Signage project, team members will be required to research hardware and networking components such as servers and switches, to evaluate possible software solutions for the distribution of information via the signage system, and to consider different networking configurations and information security concepts. By ensuring that each team member takes part in this level of research, through documentation of the solution, and presentation of the material to experienced business professionals, the chances of success for the project can be greatly increased and the team members will gain a greater understanding of real-world projects.

7.2. Information Technology

The proposed Ivy Tech project will require knowledge of project management, networking components such as servers and switches, programming and graphic design skills for the installation and configuration of software and for the creation of flash based movies and initial content for the institutions digital signage. To mitigate security and system administration issues, the TDTG has considered and purposed ways to control access to the Ivy Tech system, to protect the network components from interference and hackers, and has provided details about ways to protect the system in the event of power loss.

8. Annotated Bibliography

About Ivy Tech. Ivy Tech Community College's web site. Retrieved 10/04/2009 from

http://ivytech.edu/about/

This site provides historical and background information about Ivy Tech, as well as growth and

educational strategies planned for their future.

Spiess & Felding (2008). *Conflict Prevention in Project Management: Strategies, Methods,*

       Checklists, and Case Studies. Springer Berlin Heidelberg.

In this book, Spiess and Felding try to answer the question "What can be done to prevent, resolve,

or reduce conflicts within projects?" in order to minimize project delays and failures, and to ensure a

successful outcome. Their suggestions that key players and stakeholders be identified early, that clear

delegation of tasks and responsibilities be spelled out, along with the expectation that all team

members and business personnel will identify, agree upon, and sign-off on all project requirements

prior to project start assisted the team with addressing conflict management questions posed as a

part of this project.

Digital Signage Forum. Digital Signage Forum web site. Retrieved 10/11/2009 from

       http://www.digitalsignageforum.com

The Digital Signage Forum web site is a collection of comments, white papers, technical

instructions, and real-world experiences compiled by professionals with many years experience in

the field. It will assist the team in better understanding the challenges, timeframes, skill sets, and

technologies involved in completing this type of project.

Digital Signage Today White Paper. *The Rise of Digital Signage and the Psychology Behind It.* Retrieved

       10/11/2009 from http://leadgen.networldalliance.com/downloads/white_papers/

       G_Psychology%20of%20Digital%20Signage_NS.pdf

This white paper from Digital Signage Today was helpful to understanding the economics of a

networked digital signage project, how it can be used to target specific audiences, why specific types

of content are better for different types of consumers, and the future growth of the technology.

Additionally, it discusses the different ways in which a system can be configured, how to approach potential customers, and the basic skill sets involved in its configuration.

Omnivex Insight. *Keys of Successful Digital Signage White Paper.* Retrieved 10/11/2009 from

http://leadgen.networldalliance.com/downloads/white_papers/OmnivexInsight_Keys %20of%20Successful%20Digital%20Signage.pdf
In this white paper from Omnivex, the retailer predicts future global digital signage sales and discusses the costs involved in creating such a system, the customer and employee resource relationships and skill sets required, and the technologies best suited for the purpose. Finally, it analyzes four key principles to consider as a part of any digital signage deployment, including Context Formatting, Results Driven Information, HDTV Expectations, and Network Security Issues.

Visix – Axis TV Manual. *AxisTV v.6.4 Combined Manual (Large File).* Retrieved 10/11/2009 from

http://visixforum.com/files/folders/manuals/AxisTV_64_Combined_Manual.pdf
The AxisTV manual provides detailed specification, technology requirements, and installation instructions critical to the success of a project involving the chosen Visix technology. Using this document, team members will be able to clearly document project tasks related to deployment planning, firewall settings, network configuration options, software features, and backup/restore operations.

Visix –Axis TV Product. Visix: Visual Communications Solutions web site. Retrieved 10/10/2009

from http://www.visix.com/axistv.html

This web site provides detailed technical specifications about the Axis TV product available for use in the management of a centralized digital signage solution, as well as the hardware, networking, and security related requirements surrounding the implementation of such a solution.