INNOVATIVE ANALYSIS

RESOLUTIONS FOR
ARRIVING TO CLASS ON TIME

1. BRIEF DESCRIPTION OF THE SITUATION

Attending class in college is a large part of performing well to earn a degree. It takes a lot of time and a lot of effort on the part of the student. However making it into the classroom on-time is not necessarily the easiest of tasks.
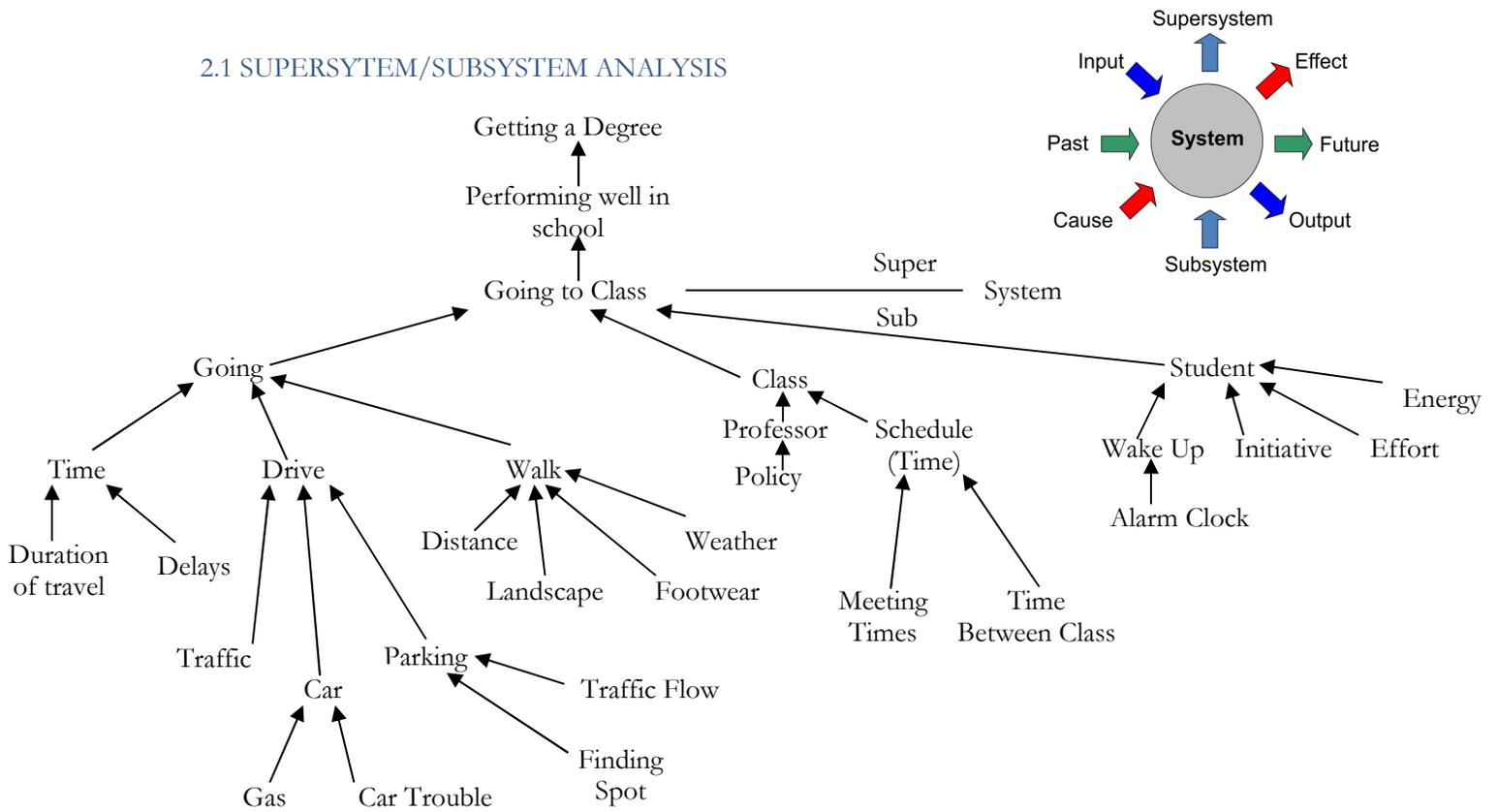
Everyone has experienced the troubles of trying to get class on-time. Usually there are repercussions for being tardy and/or absent multiple times, and those repercussions are different for each professor. Sometimes there are things beyond your control that can make you late for class. For example, certain campus activities (e.g., festivals) make some parking lots unavailable, and then it takes more time to look for a parking spot. The traffic flow of some parking lots as well as the placement of stop signs can be confusing or unclear; this delays a commuting student even further and creates many potential accidents. Commuting students may also need to stop for gas, or run into car trouble on the way. They also have to fight through heavy traffic on the way.

Walking in between classes can be beneficial. It helps get your heart rate up and blood flowing after sitting in class for extended periods of time. However, the allotted ten minutes between back-to-back classes may not be enough time for a student to reach class on-time due to the distance. Plus when there are campus activities, students may take a few extra minutes to reach class. Professors sometimes carry over the allotted time for a class period with their lectures, or a student may need to ask a question after the class is dismissed. Students are also very social, and want to have conversation with passing friends on the way to class. Lunch lines can also be very long, and students may not always be able to get food quick enough. Inclement weather can also slow students, walking or driving.

Students themselves also have to put forth much effort, time, energy, and initiative to complete all their school work, as well as take care of other responsibilities, such as work. Waking up itself can be hard to do since students may be out too late from social events, studying at late hours, or alarm clock failure.

2. DETAILED DESCRIPTION OF THE SITUATION

2.1 SUPERSYTEM/SUBSYSTEM ANALYSIS

Supersystem
Input
Effect
Past
System
Future
Cause
Output
Subsystem

Getting a Degree

Performing well in school

Going to Class — Super / System

Sub

Going

Class

Student

Energy

Time

Drive

Walk

Professor

Schedule (Time)

Wake Up

Initiative

Effort

Duration of travel

Delays

Distance

Weather

Policy

Alarm Clock

Traffic

Landscape

Footwear

Meeting Times

Time Between Class

Car

Parking

Traffic Flow

Gas

Car Trouble

Finding Spot

The flow chart above shows how the many parts of the systems coincide together. The line next to 'going to class' represents the system under analysis. Anything below that line is a subsystem of going to class. Anything above that line is a super system of going to class. The further you progress down the flow chart the more the system is broken down into subsystems.

2.2 INPUT/OUTPUT ANALYSIS

INPUT	**OUTPUT**
Walk	Arrive on-time
Park	Arrive late
Drive	Don't show for class
Effort	
Energy	
Initiative	
Traffic	
Car Trouble	
Class Dismissed	
Talking with professor	
Long lunch lines	
Campus Activities	Unavailable Parking
Weather	Extends travel time
Schedule	Meeting Times
Unavailable Parking	Chaotic Scramble
Social Students	Talk with other students
Alarm Clock	Wake up (or do not wake up)
Traffic Flow	Confusion
Footwear	Speed of travel (on-foot)
Distance	Time to travel
Policy	Academic Penalty

2.3 CAUSE/EFFECT ANALYSIS

Going to class causes a student to perform well in school. Students have to get class via walking or commute plus a short walk in order to arrive to class. Much of the system relies heavily on timing and the students. Therefore many things (i.e., weather, choice of footwear, parking, socializing, etc.) can affect the amount of time a student takes to arrive on class. Arriving to class late or not showing up can cause academic penalty for a student based on the course policy for that professor. Students must take initiative to put forth the required effort and energy in order to arrive (and sometimes just showing) to class.

2.4 PAST/FUTURE ANALYSIS

Historically universities and colleges start at moderate size, and then grow to meet the demand for their education. As the number of students (and therefore budget) grow, so does the school in order to accommodate the increasing student body. Today the largest universities sprawl across acres of land. Things that been improved and added onto campuses over time include: walkways and paths, stairs and elevators, classrooms, class location, shuttle services, multiples of services (like cafeterias), businesses, police, and technology integrations.

3. RESOURCES, CONSTRAINTS, AND LIMITATIONS

3.1 AVAILABLE RESOURCES

Student's enthusiasm	Personal Vehicle	Landscape
Student's discipline	Bike (skateboard, etc.)	Traffic Report
Student's energy	Distance	Weather Forecast
Walking	Traffic Flow	Footwear
Bus stop	Parking Lot	Alarm Clock
Shuttle (to the George)	Classroom	Sidewalks
Paths	Stairs	Elevators
Schedule	Professor	Sleep
Time		

3.2 ALLOWABLE CHANGES TO THE SYSTEM

A student can make any change they think they need in order to increase their performance in school. Students can easily change their personal class schedule. The route a student takes (walk or drive) can be changed for optimization.

Any changes involving the physical campus of the school are allowable; however, there are requirements for such changes. (See constraints and limitations) Changes to parking lots and the flow of traffic through the parking lots and around the campus are changeable. The set-up of the lunch lines and cafeteria is changeable. The sidewalks and paths are changeable. The location of classes of is also changeable. The Master Schedule is changeable (see constraints and limitations)

3.3 CONSTRAINTS AND LIMITATIONS

Any change that can be made physically has a few constraints and limitations for that change to occur. Firstly, there must be a great enough need the users (including faculty and students) of the part of campus in question in order for it to be changed. Once the issue is great enough, a proposal for how the campus is to be changed must be approved. The financials involved for physical campus changes also limit what, where, when, and how much can be changed physically.

Also a student's health (mental and physical) can place many limits on changes they need/ want to make to themselves. For example, being depressed will stop a student from making changes to themselves until they overcome the depression.

The availability of classes and their meeting times constrain the changes that can be made to a class schedule.

Time is largest constraint on the system since it revolves around time, and there is only so much time in a day to complete daily tasks. USC Upstate's Master Schedule constrains the changes allowable to the time subsystem of class. Any change to Master Schedule would need approval and careful planning in order to not mess up all the schedules involved (i.e., faculty, students, multiple campuses, etc.)

4. PROBLEM FORMULATION
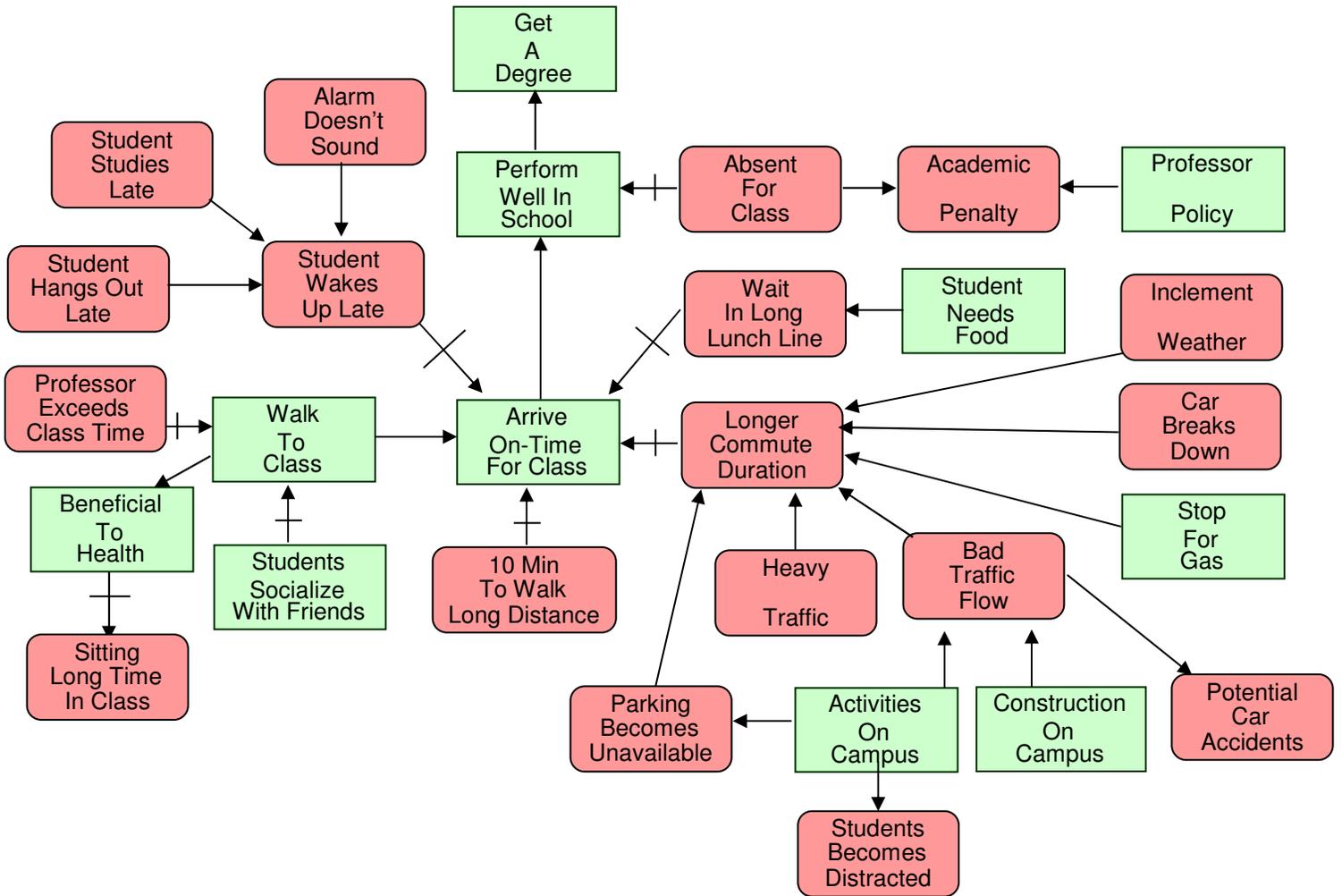
5. IDEAS

Mitigation – Add roofs to create breeze ways over some of the already existing sidewalks to counteract inclement weather for walking students

Increase effectiveness ("make a road" – preferred path) – Plan out the shortest and/or quickest path between two classes to optimize the amount of time to walk that distance

Counteract harmful effects (exclude the cause) – Traditional freshman/sophomore year students can live on campus to exclude the need to commute to class

Separate on Time (create and use pauses) - When selecting your class schedule, if possible create pauses between classes that are greater than 10 minutes in length

Integration (add object with required properties) – Provide shuttles/golf carts to carry students across campus.

Separate in structure (Building bi-systems) – Have a separate parking lot for students and faculty.

Integration (Combine objects) – Have all of the university buildings in walking proximity