NEST: A CALIFORNIA STATE UNIVERSITY, LOS ANGELES PORTAL FOR INTERNATIONAL STUDENTS

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ABSTRACT

We propose a project called "NEST" an online portal for international students acting as home base to store all of an international student's information, immigration status, immigration option information, documents, reminders and act as an international advising appointment system. At the moment, to book an advising session with an officer at the international office, you have to call in. There are no options to book an international advisement session with the current advisement portal. Furthermore, an International student is required to do many things to maintain their visa status, and such information is spread all over the internet. A dedicated international student portal will help ease the maintenance and transitioning of visa statuses, enabling international students to find employment and other opportunities easier.

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EXECUTIVE SUMMARY

International students want to finish their education and explore their opportunities in the US, while maintaining their status. Although all international students have access to the International Office and resources on the California State website, there is no centralized information system set up to aid students in creating, maintaining, and obtaining the various forms, signatures, and records needed to maintain their international student status. This report seeks to explore the ramifications of creating such a centralized information, called NEST, to fill this gap.

NEST aims to fill in the gap where students often become confused with documentation they have to submit, deadlines that apply to said documentation and also the requirements they have to meet to be eligible as international students on campus. Oftentimes these common issues can become roadblocks that hinder a student's ability to succeed on campus. Having a centralized, easy to use web portal with all these functions will facilitate and make easier for the international student.

The key strategic market targeted by NEST is International school for business students although the concept can be applied to other students that have additional requirements to maintain on campus. The main goal is to improve the international student's experience so that we retain as many of these students as we can and use this as a recruitment perk to incentivise future students.

The creation of such infrastructure requires the buy in of high level executives who can manage California State University, Los Angeles' systems. As such, we will need to discuss the key impacts, key stakeholders, costs, benefits, scope, and application of NEST for ease of review.

STRATEGY

Key Factors for Strategic Alignment

Implementation of NEST begins with the creation of an online database with compliance to privacy and data protection laws. Once the database is up and running, it will then need to be integrated into the California State University, Los Angeles server and website. Security needs to be high, due to the private nature of visas and Homeland Security documentation. All current students need to be informed on how to use NEST, and training policies need to be implemented to the current international student orientation and resource lists. All relevant California State University, Los Angeles personnel need to be trained on NEST as well.

Alignment with Desired Business Outcomes

California State University, Los Angeles relies on funding from the state, tuition, and donor support. A large chuck of tuition comes from international students, while international donor support percentage is currently unknown. International students who cannot keep up with the documentation for US education can find themselves denied entry into the US, and subsequently need to drop out or wait until they figure out their international status. Such losses can be prevented by giving the student a centralized location to manage their immigration paperwork.

Furthermore, prospective international students are often nervous about the whole immigration procedure. Having a centralized information system that provides a list of everything they need and allow for document uploading will make it easier for foreign students to apply without worry, further boosting the number of international students applications.

This online international student portal for business alumni is a perfect recruitment tool to use to gather more interest and therefore more enrollment from international students.

Value Proposition and Impact on Stakeholders

NEST will offer international students the most direct value. They will have a centralized location to manage and find additional information of all their needs in regards to their immigration status, helping them maintain their path to graduation.

Prospective international students may be more interested in California State University, Los Angeles if they know that the university provides better infrastructure support for them than rival universities. This may help to boost the school's attendance rates, which results in higher tuition revenue.

Furthermore, as California State University, Los Angeles relies on donor funding as one of their main sources of funding, building goodwill with

international students may result in more donations in the future. As many international students seek employment opportunities after their education, being able to prepare and understand their immigration status helps immensely. As students transition to professional workers, they may recall the support California State University, Los Angeles gave them and be more inclined to donate.

The school administration will also benefit from reduced workload. In having NEST, international students will most likely not have to bother the international office staff as much as before, thus allowing California State University, Los Angeles to reduce their staff overhead, assuming that less workload results in employee layoffs.

Requirements

Assets

Secure dynamic database

An online database that can manage and store files from each international student. It must be secured to prevent attackers from gaining access to private information.

Website

Including the integrated Login portal, a managing dashboard, and website database access

Integration

Links need to be updated within California State University, Los Angeles's main website, as well as the authorization portal that currently exists.

Training policy and handbook updates for relevant personnel.

Maintenance: The website and database will be maintained by a team of IT administrators, assistance, and auditors to monitor for security breaches

Scope

Scope Boundaries

Website will have the following primary functions:

- SSL encrypted Secure login/logout integrated with the Cal State LA portal

- File management

- Comprehensive information written and displayed regarding anything to do with international student immigration

- Tracker function to make sure that current students are on track with all their documents and forms

- Online assistant to guide users for basic tasks and reminders

Other Viable Options

The viability of NEST in the full scope listed above depends on government regulations. The government may not allow California State University, Los Angeles to store private immigration data on their servers due to fears of security leaks. Other viable options must be considered.

1. NEST with status tracker and information hub, without file management

NEST may not need to have the file management and database system, as that demands maintenance and security. If we shed those functions from the scope, we are left with a tracker and information portal that can act as a dynamic checklist and information source, which will be almost just as useful.

2. NEST information hub with online international student advising appointment portal, without file management and status tracker

The current advisement portal does not support appointment making with the international office. Students need to either email or call in to make an appointment. Integrating an appointment portal to the current California State University, Los Angeles international student page will eliminate this extra step.

NEST OPTIONS

Counseling Provider Option	Strategy	Business Outcomes	Cost	Cost Benefit Analysis	Impact	Risk	Advantage / Disadvantage	Risk Rating
Status Tracker and Information Only	Alerts students to pending items, provide information	Students get alert for important deadlines	Tracker development and implementation. Needs to be constantly updated	High development and maintenance costs may not be enough to justify benefit	Students have lower risk to miss any visa / immigration deadlines and higher graduation rate for international students	Students may still not be able to come in on time to submit documents	<u>Advantage</u> Less cost and risk of security breaches of sensitive documents. <u>Disadvantage</u> Won't ease the issue of traveling to submit documents	4
Information and appointment system only	Helps students connect with the international office staff easier	Students can set appointments online	Development costs and implementation cost for current infrastructure	Low cost benefit as Cal State can merely repair their existing appointment system	A student may not be able to be reminded of important deadlines.	Students still miss deadlines and lose visa statuses	<u>Advantage</u> Less developmental cost <u>Disadvantage</u> Less functionality	6

Advantages and Disadvantages

The core value of the business is to provide counseling to prospective/current students and try to convince them to enroll/remain at CSULA. It also aims at evaluating foreign credentials in the college itself. We have narrowed down the options with the advantages and disadvantages of them:

Option 1:

Status Tracker and Information Only

Advantages:

- No need to develop secure database and file management

- No need to face risk of security breaches

Disadvantages:

- Lack of ability to submit files online

- Lack of ability to view submitted files online

Option 2

Information and advisement appointment only

Advantages:

·   No need to maintain documents

·   No need to maintain status

·   Lower development and maintenance costs

·   No risk of sensitive information

Disadvantages:

·   No interactive capability with student

·   No upload / download capability

·   No alerts for threatened statuses

Option 3

Keep the information architecture as it

Advantages:

- No extra costs

- No security risk

- No risk of failure

Disadvantage:

- No alert tacking capability

- No upload / download capability

- No advising appointment capability

INFRASTRUCTURE

Current Advisement Infrastructure

The current international student website section, located at https://www.calstatela.edu/international, provides general information concerning immigration and other details specific events and forms to manage current immigation status. The list of categories of information and services presented include:

1. Request an Advising Appointment

2. Incoming Students

3. Current Students

4. Semester in LA

5. Study Abroad

6. Housing

7. J-1 Scholar Program

8. Resources for Faculty

9. International Programs Council

10. Forms and Handouts

The current international student section on the California State University, Los Angeles website provides a good general informational portal for incoming and current students, with on-site staff functioning as a physical resource to help maintain international students' visa status while studying, researching, and/or working on campus. There is also a link to the advising portal, however the current advising portal does not work to set up appointments with international counselors in the international office.

As our proposed project aims to mainly enforce the Forms and Handouts section by providing a portal to upload and maintain forms, we'll take a closer look at the current Forms and Handouts section on the Cal State LA website, as seen by the screenshot below.

Forms and Handouts

Forms and handouts for International Students are available here for viewing and as a downloadable PDF. If a form you need is not available, please contact the International Programs Office.

- ▸ **Reduced Course Load**
- ▸ **Employment**
- ▸ **OPT Extension**
- ▸ **New Student Documents**
- ▸ **Continuing Students**

Drop down menus show various forms for download. The current information provides enough support for students to move forward with their visa status and potentially become employed for OPT in the future, but this only works if the student has a system of their own to ensure they download the form, come into the International Office to submit it in time, and renew documents as needed. If a student gets close to a deadline, there is no system that warns the student that their visa status may be in danger. The student also has to drive to California State University every time they need to submit a form, which further increases the complexity of maintaining a valid immigration status unnecessarily.

Furthermore, the non-working advisement portal makes it so that the student has to call in during opening hours, which may cause problems for certain students who have conflicting work hours. With everything moving online, it makes sense to have international students be able to submit documents and set up academic advisement through a web portal.

The lack of deadlines actively displayed make it so that students have to download each and every form to see when filing deadlines are, which makes it easy to miss incoming deadlines. This clunky way of working with international students adds another barrier to entry for students who are already not familiar with this country. A student should be able to sign in and check the status of their application and deadlines all from a single page. An online "advisor" can provide which forms are required for that specific student, what deadlines they have and what appointments they have pending.

Eliminating barriers and obstacles for the international student is the priority of NEST. With these trivialities eliminated, the student can focus on schoolwork, making sure they are meeting the graduation requirements, and complying with international student law.

Assuring students are meeting the requirements of international policy is another important aspect of NEST. NEST will also include guidelines that international students have to follow and how to continue being eligible for international student status.

What we outlined above are all added complexities that may complicate an international student's ability to stay and graduate from California State University, and therefore is a risk to the main revenue stream for the university.

Proposed Infrastructure

"NEST" an online portal for international students acting as home base to store an international student's required information, immigration status, documents, important date reminders and act as a liaison for the International Student advising and appointment system. Creating a user-booking portal to the advising center with the international office. Developing accessibility for booking an international advisement session with the current advisement personnel. The International student visa status and supporting information will be located in one portal. A solely dedicated international student portal will facilitate management of visas, enabling students to ease the cumbersome process of employment and other opportunities.

The NEST portal will consist of a web portal hosted either on calstatela servers or another host like godaddy. The page is dynamic, based and curated on the student signed in. The backend for NEST is a database hosted on a server and the whole platform being run on a framework like CakePHP.

Layout

This International Student portal is a practical portal that supports the upload, maintenance, and downloading of forms, fitted with a tracker for each individual student that warns of them incoming and missed deadlines. The portal is accessible by the International Office staff, who ensure that students have the correct form needed to maintain their immigration status.

The portal is connected to the Cal State LA authentication system and is fitted with security measures to prevent malicious attacks from the open Internet. The servers hosting students' private files are safeguarded by a proxy server and most up-to-date software and hardware firewalls.

The portal uses end-to-end encryption to protect student's sensitive data. It uses SSL and 48 bit encryption. Two factor authentication can also be setup using the student's email or phone number.

A sign in page is offered to the viewer upon the first visit, with cookies enabled for ease of use. After signing in, the user will be met with a list of personalized deadlines, relevant forms, and the option to upload those forms.

The page will also have a navigational menu that leads to other services and information:

1. Uploaded files

2. Optional Immigration Information

3. Post-graduation Information

4. Advisement Appointment

5. Contact

The home page is customized particularly for current and accepted incoming students, with relevant deadlines served depending on what documents they have not submitted yet, and what status they are (F, J, M).

The system accepts uploads, which will show the following statuses depending on the item deadline and item status:

1. Pending Upload

2. Pending Upload Incoming Deadline

3. Pending Approval

4. Approved

5. Rejected

6. Missed Deadline

7. Walk-in Requested

All generic forms will be accessible at the bottom of each page without the need to search for commonly accessed information. In the lower left corner will be a quick link to all upcoming international student-related events and reminders, such as an upcoming date for an OPT workshop.

Form support will be provided by adobe plugin and HTML5's built in PDF support. The webpage will be able to fetch and write the data the student submits on a form to the database to keep incase the form submission fails. Students can be confident that the information will be stored securely as stated previously.

In many ways, a portal is a home away from home-page. We want it to be an experiential and informative portal, but also practical and user-friendly.

The portal must also have backend access for International Office staff. Once a document is uploaded, the International Office staff will be able to view a list of uploaded documents sorted by date to approval or reject based on its validity. The staff can also request that the student walk in to the office if the service requires it. With extra accessibility added for the International Office staff, it will make it so that staff can help monitor a student's immigration status and provide help by contacting the student if necessary. The approval/rejection of documents also help by eliminating the need for students to walk in to the International Office, and thus save time for both the student and the staff.

The office staff responsible for accepting these documents can quickly and easily send a notification to said student regarding their application or status. There is no need to walk in to get a rejection or to be informed your application is missing some form or other documentation. NEST will automatically send the notification to the students' preferred communication(email, text, robocall).

The layout provides excellent choices for the website's users who are looking to have both uploading and downloading of forms on the same page. This International Student portal form comes with an image slider on the left grid and a stylized signout buttons on the right grid. A small box in the bottom right corner will give user access to the chat bot to answer commonly asked questions or provide an email option. The footer menu navigation will allow the student to move easily between the available web pages present in the portal.

Costs

Costs of Technology

The development of NEST of the International Student portal at California State University, Los Angeles requires a high-speed connection to the Internet, a web server, and software. Most of these costs are currently maintained by the IT Department of the university under the supervision of and permissions granted by the College of Business and Economics.

ITS will have to be involved as well as the College of Business and Economics. The people of both these departments have to be able to continue with their business processes with NEST synergistically rather than cause problems during and after the integration.

It will also have to decide whether this is built inhouse or outsourced to a third party. The benefits of inhouse are clear for an institution like cal State L.A. It would have sole control over the sensitive student information and can continue to improve upon the system using its current talent. Downsides include a higher cost of inhouse as well as how the talent of Cal State L.A. handles a project like this.

To create this proposed NEST infrastructure, the first and foremost items that are required are the hardware needed to support it. This includes items such as servers, cables, installation tools, and racks. Specialized security hardware such as firewalls and proxy servers need to be included, as well as network hardware such as switches, extenders, and wifi equipment.

Software is a big part of the added costs as well, and includes licenses for database and operating systems, security monitoring software, and connectivity and backup applications, all of which need to be purchased and setup on the appropriate hardware.

Costs for technological development

Developing the database, website, web portal functionality, testing, and deployment will be a large part of the one-time installation cost for NEST. For this part, we

Integrating the current California State University, Los Angeles IT infrastructure with the new NEST infrastructure will require a team of qualified development IT personnel to handle the installation, design, development, and deployment of NEST. We estimate the need of 5 full time IT personnel for the duration of the project, which we estimate at 1 year. This involves a small group of programmers, designers, and a team lead who are to interpret the functional requirements and program/create the website.

The functional requirements are to be finalized by the board and decided by ITS and the programming team. User input is highly required, as only international students can share the gripes the current system offers.

Furthermore, third party consultancy and audit firms will be required to ensure the success of the project, in terms of additional advisement and third party auditing to ensure compliance across security and IT best practices. The nature of information that will be hosted on the servers is extremely sensitive, and third party oversight will be a major contributor to NEST's success.

Costs for the consultancy and auditing

The services of consultants specializing in website design, development and implementation will be required to oversee this project. Students may be able to be utilized for cheap or free assistance as well.

Auditors will be needed at multiple stages to assess security and integrity of project.

Cost per training of counselors and staff evaluators

Training will be required for the International office counselors, staff and IT maintenance team members for security, maintenance policy, as well as any legal or fiduciary obligations that may be relevant.

Total One-Time Costs

S. No.	ITEMS	COSTS ($)
1.	Development Team	400,000
2.	Connecting Website Portal to Cal State Authentication	5,000
3.	Installing Enterprise Database	7,000
4.	Training Cal State LA Staff	10,000
5.	Training International Students on Usage	10,000
6.	Implementing Security Measures	20,000
7.	Hardware	20,000
8.	Emergency Failsafe Redundancy System	20,000
9.	Consultancy	20,000
10.	Audit	20,000
	Total	**532,000**

Maintenance Costs

Whether this portal is built in-house or is outsourced, the initial cost of the programming work will likely be relatively low compared to the long term costs of maintenance. Training of ITS personnel in charge of maintaining the system, along with a dedicated team of an IT auditor, IT administrator, and IT assistant will need to be factored into the overall maintenance costs as well as auditing and security testing.

Maintenance of the web server, hardware, software and other maintenance costs

Additionally, active Internet access is required for NEST to operate. There are many hardware devices and software licenses that will continually depreciate and need renewal over time.

Below are the projected annual maintenance costs on services, hardware and software for the project.

S. No.	ITEMS	COSTS ($)
1.	Hosting Website	2,000
2.	Web Portal Maintenance	5,000
3.	Maintaining Software Licenses	2,500
4.	Insurance	6,000
5.	IT Auditor	20,000
6.	IT Administrator	80,000
7.	IT Assistant	55,000
8.	Rental Space for Hardware	12,000
9.	Network and Connectivity	5,000
10.	Monitoring and Backups	10,000
11.	Updating Contents	5,000
	Total per Year	**$202,500**

Cost Benefit Analysis

Assuming that the NEST portal will help increase immigration enrollment for International Students at 10% more per year. Assuming each year, Cal State LA receives 2,000 international students paying $10,000 per semester, 10% of that is 200 students paying $20,000 per year (2 semesters per year). Additional revenue generated would be $400,000 (200 students * $20,000 per year).

The NEST portal could also help current students maintain their immigration status and increase the rate of graduation. Let's assume at any given time there are 8,000 international students currently enrolled at Cal State LA, and the NEST portal helps retain 2.5% of all international students from dropping out due to immigration issues, that would calculate to 200 students per year, paying $20,000 per student. This would increase additional revenue of $400,000 per year.

The combined figure of $800,000 additional assumed revenue per year is easily enough to offset the one-time development cost and maintenance costs calculated above. There is also an incalculable benefit of added donations from happily graduated alumni.

This cost benefit analysis provides a simple look at how NEST can improve the revenue stream of tuition from international students, and serves to support that NEST is a good idea to implement.

Impact

Foreign Students

Foreign student's enrollment and retainment rate will increase due to the ease of immigration maintenance. Graduation rate for foresign students will also inevitably increase due to the lower risk of missing important deadlines. As the number of prospective and current students increase, the expenses and manpower needed to maintain the portal and the associated files also increase.

International Office Staff

International Office Staff will likely see their workload reduced, as the number of physical paperwork they have to accept and file will also be greatly reduced by the online portal, where they can accept, review, and submit their approval without having to meet the students in person. However, the staff will need to be constantly updating the portal and monitoring the status of each international student, so their online workload will massively increase.

The University

California State University, Los Angeles will benefit from increased tuition profit of $597,500 per year. This is to make the project profitable in year two after launch assuming our cost and benefit assumptions are correct.

Risks

Risk is defined as the possibility of negative occurrence that may happen due to external or internal factors, and that may be mitigated through preventive actions. All projects are subject to risks. In fact, there is an infinite number of things that could prevent us from achieving our goals when working on a project.

Biggest risk factors for NEST services.

	Risk Description	Probability (H/M/L)	Impact (H/M/L)	Planned Response	Outcome
1	Application failure	Low	High	Use of proactive method to reduce risk. But in the unfortunate event, address problem immediately and identify cause and resolution. Communicate progress to stakeholders.	Application tested, fixed, tested again and reinstated
2	Service	High	High	Analyze other counseling portal that has provided a similar service and learn from their mistakes	Understanding the risk made by other companies will help our business

3	Security Breach	High	High	Software and Hardware firewall, Proxy Server, Secure Authentication, 2FA Authentication, Staff Training, Limited Access, Encryption of Plain-text Documents	Protect sensitive documents from leaking to hackers and unauthorized access
4	Delays in deployment	moderate	high	Frequent monitoring and checking progression of project with development team. Aiding and providing support when in trouble	Launch of web portal is on time and resembles what the user wants
5	Data loss due to catastrophic event	low	high	Ensuring following three backup rules (onsite, offsite and cloud)	Provides data redundancy and mitigate damage
6	Full application functionality may not	moderate	moderate	Ensure the most critical features and functions are operational before launch. Agree on the	Delivery of NEST portal with basic, critical

	be achieved at launch			most important application features are needed to have a successful launch	features ensures higher success rate and decreases chances of decommiss ioning
7	Data integrity is compromis ed due to user error	moderate	low	Database needs to be built and designed as normalized(3rd normal form at least). Create a database structure that is secure, gives the right access to the people that should have access.	The integrity of the informatio n stored in the web servers become compromis ed

Closing Statement

For this project to work, we need approval from all major decision makers. From what you can see so far, NEST will be a great addition to the current Cal State LA information infrastructure, and will provide great return on investment from its implementation. We sincerely hope you review this project proposal thoroughly, and send it to the respectable decision makers to get this proposal reviewed.