



# COUNTY OF LOS ANGELES DEPARTMENT OF HUMAN RESOURCES

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February 28, 2018

To: Supervisor Sheila Kuehl, Chair  
Supervisor Hilda L. Solis  
Supervisor Mark Ridley-Thomas  
Supervisor Janice Hahn  
Supervisor Kathryn Barger

From: Lisa M. Garrett   
Director of Personnel

**Subject: PILOT PARTNERSHIP FOR TECHNOLOGY PROJECTS (ITEM NO. 10,  
AGENDA OF OCTOBER 17, 2017)**

On October 17, 2017, your Board adopted a motion introduced by Supervisor Hilda L. Solis directing the Executive Office, of the Board of Supervisors in conjunction with the Departments of Parks and Recreation, Human Resources, and the County Librarian to formulate a pilot partnership with California State University, Los Angeles (Cal State LA) - College of Engineering, Computer Science, and Technology to identify key technology projects that will augment departmental services and further provide Cal State LA students with blended learning assignments that provide hands-on exposure to the County's diverse service landscape, and report back to your Board in 120 days.

Your Board further directed the Department of Human Resources to report back with a set of comprehensive recommendations that would allow the County to extend this pilot program to other academic institutions beginning with local universities, technical colleges, and trade schools. The recommendations were to include any potential postgraduate recruitment and/or employment opportunities that would further augment a County academic partnership and identify classifications and career pathways that enable the potential candidates to enter the County IT workforce based on the experience gained in the program.

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Since 1996, the County has had a long-standing partnership with Cal State LA through its Academic Internship Program (AIP), formerly known as C-BEEP. AIP matches college/university students with County departments to complete specific projects or conduct research in exchange for academic credit. Academic interns obtain practical and meaningful experience through these hands-on assignments, some of which are focused on Information Technology (IT). Engaging and partnering with the Cal State LA - College of Engineering, Computer Science, and Technology to identify key technology projects to augment departmental services will serve to further strengthen the partnership and provide new opportunities for blended learning for students.

The attached report describes three current blended learning technology projects that Cal State LA students are engaged in to augment County departmental services and the method by which future key technology projects will be identified.

In addition, the report includes a set of comprehensive recommendations that will allow the County to extend this pilot program to other academic institutions, beginning with local universities, technical colleges, and trade schools.

Lastly, DHR has identified classifications and career pathways that will enable the potential candidates to enter the County IT workforce based on the experience gained in the program.

Should you have any questions or need additional information, please contact me at (213) 974-2406.

LMG:EP:MM  
CDW:MB:JSM

Attachment

TS:Board Cover Memo re Pilot Partnership for Technology Projects - 2-28-18



# PILOT PARTNERSHIP FOR **TECHNOLOGY** PROJECTS

## IMPLEMENTATION PLAN

Response to Board Motion  
October 17, 2017, Agenda Item No. 10



## **Background**

On October 17, 2017, your Board adopted a motion introduced by Supervisor Hilda L. Solis directing the Executive Office, of the Board of Supervisors in conjunction with the Departments of Parks and Recreation, Human Resources, and the County Librarian to formulate a pilot partnership with California State University, Los Angeles (Cal State LA) - College of Engineering, Computer Science, and Technology (ECST) to identify key technology projects that will augment departmental services and further provide Cal State LA students with blended learning assignments that provide hands-on exposure to the County's diverse service landscape, and report back to your Board in 120 days.

Your Board further directed the Department of Human Resources (DHR) to report back with a set of comprehensive recommendations that would allow the County to extend this pilot program to other academic institutions beginning with local universities, technical colleges, and trade schools. The recommendations were to include any potential postgraduate recruitment and/or employment opportunities that would further augment a County academic partnership and identify classifications and career pathways that enable the potential candidates to enter the County IT workforce based on the experience gained in the program.

## **Pilot Partnership**

Cal State LA's College of ECST utilizes multiple models of partnerships with industry and the public sector, all of which provide blended learning opportunities for students as well as achieving concrete goals for their partners. Since 1996, the County has had a long-standing partnership with Cal State LA through DHR's Academic Internship Program (AIP), formerly known as C-BEEP. The DHR AIP matches college/university students with County departments to complete specific projects or conduct research in exchange for academic credit. Academic interns obtain practical and meaningful experience through these hands-on assignments, some of which are focused on Information Technology (IT). In addition to internships (either paid or for unpaid academic credit), ECST offers a sponsored senior design program, providing a team of students and faculty to solve important business challenges for the sponsors, which include both private and public entities. Engaging and partnering with the Cal State LA – ECST to identify key technology projects to augment departmental services will serve to further strengthen the partnership and provide new opportunities for blended learning for students.

The Executive Office of the Board of Supervisors, and the Departments of Parks and Recreation, Human Resources, Public Library, and Internal Services met with the dean and professors from the Cal State LA – ECST and representatives from the Office of the President and the Executive Vice President and Chief Operating Officer, to discuss the partnership and how to build upon the projects that students are currently engaged in. We further discussed ideas regarding events and interactions which would allow us to collectively identify key business areas and initiatives that are aligned with the County mission and the Board of Supervisors' priorities to aid departmental efforts in achieving

their goals efficiently. Additionally, such partnerships aim to provide students with hands-on learning experience by engaging them in solving business challenges preparing them for their career path and exposing them to the employment opportunities available with the County.

### *Current Blended Learning Projects*

As part of this pilot program, three teams of Cal State LA students and faculty are currently engaged in the following one year technology projects:

- Public Library: Automated Library Card Application

*Project description:* In partnership with the Department of Public Library, the Cal State LA Computer Science Department has implemented an application that will allow users to register for library services available online and at the 87 libraries of the LA County Public Library system. This will provide an easy-to-use online alternative that allows customers to obtain library cards using desktop or mobile devices. The application will assist visually-impaired users by providing a voice assist feature and will have the capability to obtain the necessary information by applying optical character recognition to an image of the user's driver's license. The application will also validate the users and will provide high security and verification measures using email verification and reCAPTCHA. The application will support English and Spanish, and we will investigate the accuracy of using machine translation to support other languages.

The following components have been completed.

- a) A prototype version of the system is running on the Cal State LA school servers. The basic form, CAPTCHA, and email verification parts of the project are working.
  - b) The voice-assist module is slow and requires a little more work, but we have cleared the main technical challenges.
  - c) The module that will parse information from driver's license images is still at an early stage, but we are making progress on it.
- Executive Office, Board of Supervisors Kenneth Hahn Hall of Administration Digital Directories:

*Project description.* The Los Angeles County Kenneth Hahn Hall of Administration (Hall) has identified a series of technological initiatives with the intention of augmenting service delivery and public accessibility within the Hall. The Executive Office is in the process of installing interactive directories (digital smart boards) on the first four floors that will assist the public with finding services within the building and the County at large. The smart boards will provide a rich and interactive digital experience in multiple languages. The directories will be integrated smart technologies that will recommend optimal paths to requested locations. Currently, Cal State LA students are exploring the utilization of commercially available

products such as Amazon Alexa, and Microsoft Cognitive Services. These cloud-based services will provide a build natural voice (multilingual) experience to constituents and provide more intuitive ways to deliver relevant County information. Additionally, Cal State LA has also been tasked with creating a portal for the tenant departments of the Hall. This portal will allow departments to remotely update information displayed on the digital directories germane to their department.

- a) Completed business requirements gathered for smart navigation functionality.
- b) Completed digital concept of building smart navigation program.
- c) Completed rough prototype of tenant web portal.
- d) Built first iteration of digital assistant using Amazon Alexa artificial intelligence.

- Department of Parks and Recreation: Fleet Management

*Project description.* Parks and Recreation has hundreds of vehicles of different makes and models. Currently the department's vehicle usage tracking is paper-based and staff manually aggregate that data for tracking vehicle usage and safety checks. This process is time consuming for the employee, service personnel, and relies on the accuracy of manually supplied information. An automated system is being developed to retrieve information from County motor vehicles. This system is intended to eliminate the paper based process, improve accurate reporting and vehicle maintenance capabilities. An authentication component is also part of the interface for every vehicle. Only employees of Los Angeles County Parks and Recreation should be able to drive the vehicles, so a lockout system will be applied based on the employee's identification (County tap ID cards). Successful implementation of the system will translate into elimination of paper waste footprint, improved use of County resources, improved control over maintenance costs, and a simplified process for authorizing and reporting usage of County vehicles. The first year of the project will focus on the "edge" portion along with initial work on the networking and server-side web system.

The primary elements of the first year goals have been met. The "edge" portion of the system has been designed, implemented, and tested.

- a) Collect vehicle trip data (such as GPS tracking to allow reconstruction of trip routes) and vehicle diagnostics via an On-Board Diagnostics (OBD) device and a microcontroller (Raspberry Pi),
- b) Transmit data via IEEE 802.11 ab/g and IEEE 802.15 network communication protocols and Apache NiFi and MiniFi data flow control network protocols to a server, and
- c) Provide web access to that data through which drivers can enter—and managers can examine—trip information.

## **Recommendations**

### *Partnership Expansion*

The County, through the DHR AIP, has existing partnerships with most of the local universities in Los Angeles County and is in the final stages of completing a partnership agreement with the Los Angeles Community College District. With these agreements in place, the County can easily extend the pilot program to other academic institutions. This extension will include but not be limited to:

- Provide opportunities for students to be exposed to a blended learning project in an IT environment for up to one year, including both internships and the sponsoring of senior design projects,
- Create a bridge from academic learning to a hands-on career with the County's diverse civic landscape,
- Assess County departments for a pool of potential employees to augment their succession planning efforts,
- Enhance the County with exposure to the most current technological advances, tools, and ideas to augment departmental services; and
- Showcase the County as an employer of choice.

DHR proposes the following recommendations to implement the extension of the pilot program:

- Review the information technology degree and certificated programs offered by the colleges and universities to determine which learning institutions provide a curriculum that prepares students for future County IT employment opportunities,
- Scan all County departments to create a list of key technology projects for the colleges and universities to select from, and
- Partner with the colleges and universities to determine blended learning assignments that will provide hands-on exposure to technology projects.

### *Postgraduate Recruitment*

Currently DHR AIP students complete an average of 150 projects per year (average of 75 per semester) with the County in various disciplines and departments. After they complete the projects and graduate, many of the students consider the County, as well as other employers. To further engage the students and ensure their awareness of the County IT career pathways that they may be eligible for, we propose through the DHR AIP, the following methods to continue to engage with the students after completion of the projects:

- Send email blasts to students regarding IT exams,
- Announce exams and IT events via social media,
- Engage college & university professors regarding IT job opportunities,

- Conduct County IT info sessions on campus including emphasis on public service, mentoring, training, and advancement,
- Conduct onsite IT job fairs at colleges & universities,
- Create an IT specialty within the DHR Administrative Intern and Management Fellow programs,
- Provide a certificate of completion to students that complete the DHR AIP-IT projects to be submitted with exam applications,
- Schedule exams for the top 3 – 5 classifications that are hard to recruit or have projected upcoming vacancies, on a regular basis, and
- Create specialty exams that are restricted to students completing DHR's AIP- IT or sponsored project.

During this initial pilot, DHR can also partner with Cal State LA to provide IT examinations on the Cal State LA campus. This will provide an opportunity for the County to administer IT exams more frequently, increase the efficiencies of exam administrations, reduce the amount of staff required to administer the exams, and increase the availability of County resources for other IT projects. Additionally, this may provide candidates more flexibility in the examination process.

After the completion of the 12-month pilot partnership with Cal State LA, the Executive Office of the Board of Supervisors, Departments of Parks and Recreation, Human Resources, and Public Library will evaluate the progress and quality of the IT projects, number of students participating, number of departments participating, and number of students who have applied for County exams.

### *Classifications/Career Pathways*

While students are enrolled in undergraduate or graduate studies, they are eligible to apply for a Student Worker IT position. The Student Worker IT positions provide students with a paid work opportunity that allows their work schedule to be adjusted based upon the student's class schedule. Current salaries for the positions are:

- Student Worker, IT \$17.96/hour
- Student Professional Worker, IT \$21.71/hour

Upon graduation, students may elect to apply for one of the County's two-year paid structured internship/fellowship programs – Administrative Intern / Management Fellow. DHR AIP is a two-year rotational program where an intern may be exposed to several IT projects in a minimum of two County departments. The DHR Management Fellow Program, also a two-year program, provides an opportunity for a graduate with an advanced degree to work on a large County project, which could span up to two years to complete. Current salary ranges for the positions are:

- Administrative Intern, IT \$4,476.36 - \$4,989.45/month
- Management Fellow, IT \$5,235.54 - \$7,924.42/month



DHR has identified the following career pathways for IT students to enter the County IT workforce either on a part-time or full-time employment basis.

The first chart depicts IT internship pathways and the second chart depicts IT County Career Pathways.

<b>IT Internship Pathways- Chart I</b>				
<b>Academic Intern (AIP)</b> (unpaid)	<b>Student Worker, IT</b> (paid)	<b>Student Prof'l Worker, IT</b> (paid)	<b>Administrative Intern</b> (paid)	<b>Management Fellow</b> (paid)
Student at a partner college/university applies to complete a County project for course credit	Open an exam	Open an exam	Open an exam - specific for IT	Open an exam - specific for IT
Departments interview and select	Departments interview and hire	Departments interview and hire	DHR interviews and hires	Departments interview and hire
Assign to department for one quarter/semester/year	Assign to department for up to six years	Assign to department for up to six years	Assign to departments for 2 year rotational program	Assign to departments for up to 2 years
Student graduates from community/4-year college	Student graduates from community/4-year college	Student graduates from 4-year college	Complete 2 year program; department placement	Complete 2 year program; department placement
Transitions to IT classification	Transitions to IT classification	Transitions to IT classification	Transitions to IT classification	Transitions to IT classification

IT County Career Pathways- Chart II								
CLASSIFICATION	MINIMUM	MAXIMUM	0-6 Months Exp	1 Year Exp	2 Years Exp	3 Years Exp	4 Years Exp	5 Years Exp
<b>ACCOUNTING SYSTEMS ANALYST GROUP</b>								
ASST ACCOUNTING SYSTEMS ANALYST	5,560.91	6,543.73	X (Bachelor's)					
ACCOUNTING SYSTEMS ANALYST I	5,958.45	7,814.91		X				
ACCOUNTING SYSTEMS ANALYST II	6,290.64	8,249.91			X			
<b>ADMINISTRATIVE SERVICES MANAGEMENT GROUP</b>								
ADMINISTRATIVE INTERN I	4,476.36	4,989.45	X (Bachelor's)					
ADMINISTRATIVE INTERN II	4,989.45	6,198.45		X (Bachelor's)				
MANAGEMENT FELLOW		6,711.57	X (Master's)					
<b>APPLICATIONS DEVELOPER GROUP</b>								
ASSISTANT APPLICATION DEVELOPER	4,808.00	5,973.00	X (Bachelor's)	X				
APPLICATION DEVELOPER I	5,856.64	7,275.27	X (Bachelor's)		X			
APPLICATION DEVELOPER II	6,183.09	7,681.27	X (Bachelor's)			X		
SENIOR APPLICATION DEVELOPER	6,690.27	8,774.64				X (Bachelor's)	X	
<b>COMPUTER OPERATOR GROUP</b>								
COMPUTER EQUIPMENT OPERATOR	2,822.00	3,687.36	X					
COMPUTER SYSTEM OPERATOR	3,281.18	4,292.09		X (1.5 yrs)				
COMPUTER OPERATOR SPECIALIST	3,651.55	4,784.55			X			
COMPUTER SYSTEMS SCHEDULER II	3,538.45	4,633.55			X			
<b>DATA PROCESSING SUPPORT GROUP</b>								
DATA CONTROL CLERK	3,478.00	3,478.00		X				
SENIOR DATA CONTROL CLERK	3,853.45	3,853.45			X			
DATA CONVERSION EQUIP OPERATOR I	3,714.91	3,714.91	X					
DATA CONVERSION EQUIP OPERATOR II	4,136.91	4,136.91		X				
SENIOR DATA CONVERSION EQUIP OPR	4,136.91	4,136.91		X				
<b>GEOGRAPHIC INFORMATION SYSTEMS GROUP</b>								
GEOGRAPHIC INFO SYST TECHNICIAN I	5,152.36	6,400.36	X (AA/GIS Certification or Bachelor's)			X		
GEOGRAPHIC INFO SYST TECHNICIAN II	5,439.18	6,756.82	X (AA/GIS Certification or Bachelor's)	X				
SUPVGEOGRAPHIC INFO SYST TECH	6,183.09	7,681.27				X	X (AA/GIS Certification)	
GEOGRAPHIC INFO SYSTEMS ANALYST	6,183.09	7,681.27	X (Bachelor's or Master's)			X (AA/GIS Certification)		
SENIOR GEOGRAPHIC INFO SYST ANALYST	7,063.09	8,774.64		X (Master's)		X (Bachelor's)		
<b>INFORMATION SYSTEMS GROUP</b>								
INFORMATION TECHNOLOGY AIDE	3,346.09	4,377.91			X			
SENIOR INFORMATION TECHNOLOGY AIDE	3,929.27	5,152.36				X		
INFORMATION SYSTEMS ANALYST AID	4,554.00	5,973.00	X (Bachelor's)	X				
ASST INFORMATION SYSTEMS ANALYST	5,014.18	6,576.09		X				
INFORMATION SYSTEMS ANALYST I	5,439.18	7,133.27	X (Bachelor's)	X				
INFORMATION SYSTEMS ANALYST II	5,842.09	7,662.18		X (Bachelor's)	X			
IT SECURITY ANALYST	6,756.82	8,861.91			X (Bachelor's)	X		
IT SECURITY SPECIALIST	7,990.36	10,479.82					X (Bachelor's)	X
DATABASE ADMINISTRATOR	8,209.73	10,767.91					X (Bachelor's)	X
MATERIALS MGMT SYSTEMS COORDINATOR	8,089.18	10,609.73				X		
<b>INFORMATION SYSTEMS SUPPORT ANALYST GROUP</b>								
INFO SYSTEMS SUPPORT ANALYST I	5,900.27	7,329.55		X				
INFO SYSTEMS SUPPORT ANALYST II	6,229.18	7,738.55			X			
SENIOR INFO SYSTEMS SUPPORT ANALYST	6,740.18	8,840.09				X		
SR INFO SYSTEMS CONTRACTS ANALYST	7,185.91	9,425.00				X		

IT County Career Pathways								
CLASSIFICATION	MINIMUM	MAXIMUM	0-6 Months Exp	1 Year Exp	2 Years Exp	3 Years Exp	4 Years Exp	5 Years Exp
STUDENT PROF WORKER,INFO TECH		21.71	X (enrolled)					
<b>NETWORK SYSTEMS GROUP</b>								
NETWORK SYSTEMS ADMINISTRATOR I	5,439.18	7,133.27		X (Bachelor's)	X		X	
NETWORK SYSTEMS ADMINISTRATOR II	6,062.45	7,951.27			X (Bachelor's)	X		X
<b>OPERATING SYSTEMS ANALYST GROUP</b>								
OPERATING SYSTEMS ANALYST	6,337.45	8,311.27			X	X (Bachelor's)		
SENIOR OPERATING SYSTEMS ANALYST	7,275.27	9,541.91			X (Bachelor's)	X		
SYSTEMS PROGRAMMER,PUBLIC WORKS	7,738.55	10,149.00					X	
<b>TECHNICAL SUPPORT GROUP</b>								
IT TECHNICAL SUPPORT ANALYST I	4,622.18	6,062.45		X				
IT TECHNICAL SUPPORT ANALYST II	5,152.36	6,756.82			X			
SENIOR IT TECHNICAL SUPPORT ANALYST	5,742.09	7,531.27				X		

The Executive Office, of the Board of Supervisors in conjunction with the Departments of Parks and Recreation, Human Resources, and the County Librarian are very pleased to be given the opportunity to collaborate on the response to this motion. This program provides an opportunity to further expand our partnerships with colleges to provide students with blended learning assignments and hands-on exposure to the County's IT projects. In addition, this program provides potential employment opportunities for students to enter the County's IT workforce based on the experience they gain through this program.

Upon your Board's approval of this implementation plan, we will continue to expand this partnership to include this opportunity to other colleges and universities. We look forward to your Board's approval of our plan and vision.