Unmanned Systems Workforce Report

OEA 2017 Grant

November, 2018

Report prepared by:
South County Economic Development Council

This project is funded in whole or in part with Community Economic Adjustment Assistance for Reductions in Defense Industry Employment funds provided by the U.S. Department of Defense Office of Economic Adjustment to the City of San Diego. The Propel San Diego Initiative is a partnership between South County EDC, East County EDC, San Diego Regional EDC, City of San Diego, SDMAC & San Diego Workforce Partnership

Background:

In 2016, the City of San Diego received grant funding through the Community Economic Adjustment Assistance for Reductions in Defense Industry Employment funds provided by the U.S. Department of Defense Office of Economic Adjustment. To assist the defense community and maximize the grant, the Propel San Diego Initiative was created and is a partnership between South County Economic Development Council (SCEDC), East County Economic Development Council, San Diego Regional Economic Development Corporation, City of San Diego, San Diego Military Advisory Council and San Diego Workforce Partnership. The goal of Propel San Diego is to make the local defense sector more resilient to the ebb and flow of defense contracting.

In support of this effort, SCEDC is working to identify immediate workforce needs in the field of unmanned systems (aerial, underwater, land and surface). The goal is to understand the needs and create curriculum which can be used to prepare a workforce that possess the skills needed to immediately enter the field of unmanned systems. Local companies in this field were surveyed to identify workforce needs.

Twenty companies located in the San Diego region performing work in unmanned systems responded to the survey. The following are the results from survey.

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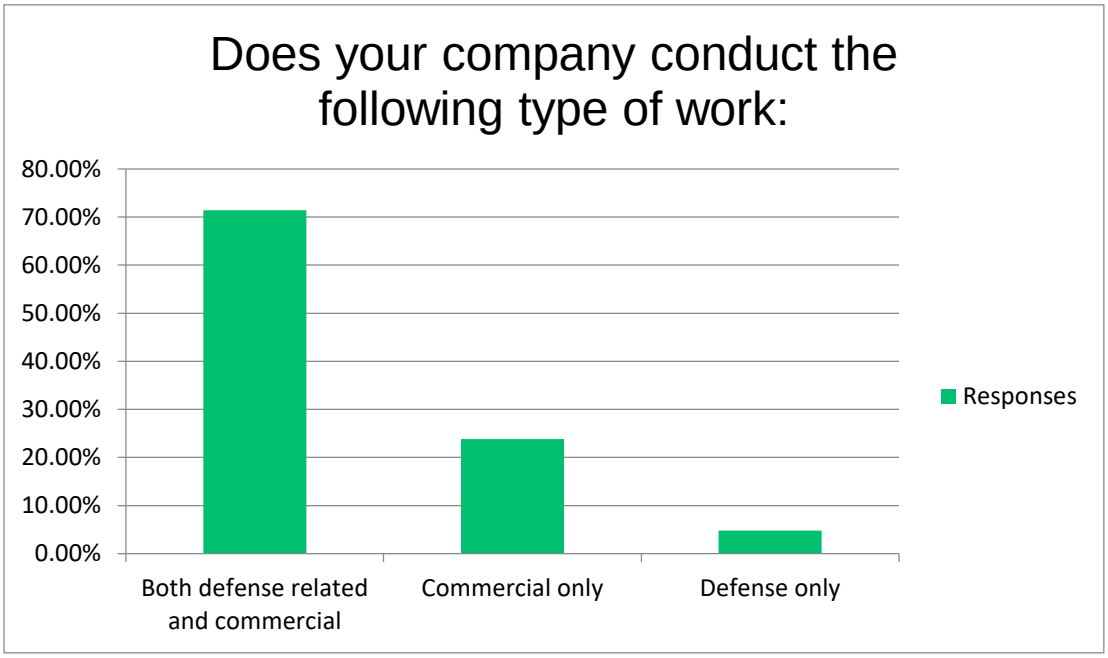
Does your company conduct the following type of work?



The majority of companies that responded to the survey work both in defense and commercial sectors. Only 5% of the companies that responded indicated their work was only in defense, 21% conveyed they did not work in defense, while 73% indicated their company did both commercial and defense related work.

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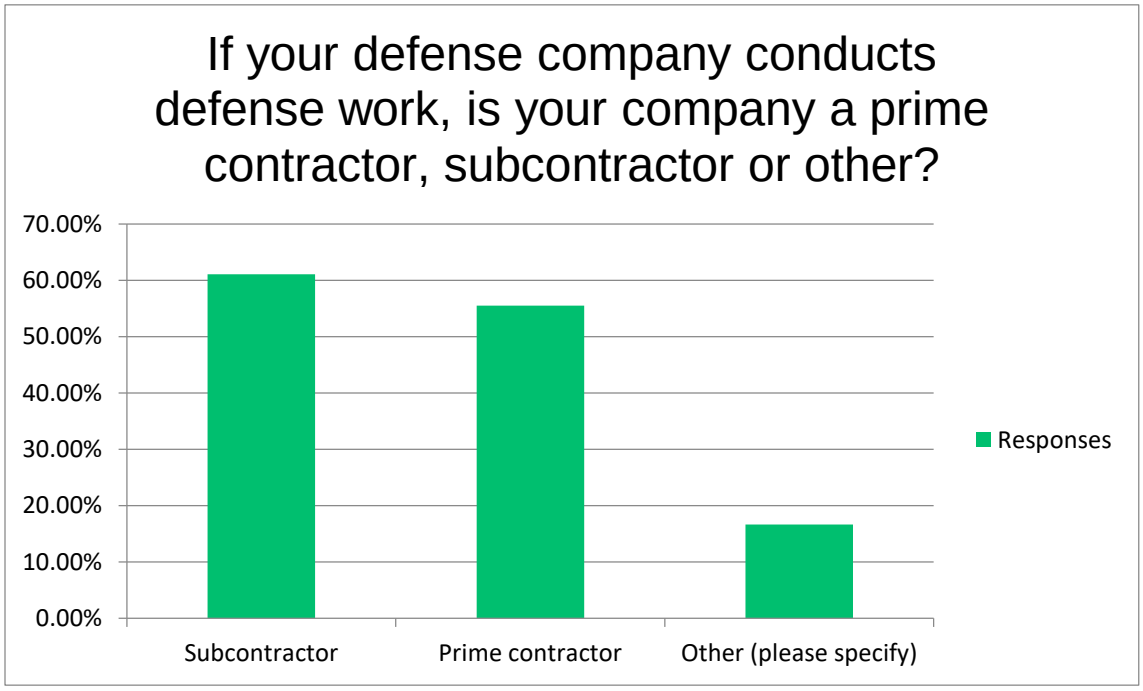
If your company conducts defense work, is your company a prime contractor, subcontractor or other?



Over 61% of the respondents noted they were subcontractors and 55% indicated they were prime contractors. Several of the companies said their role transitions between prime and subcontractor depending on the contract. Three companies listed their role as "other" and said their role was dependent on the scope of work in the contract and fluctuated between prime and subcontractor. This is consistent with several respondents selecting both prime and subcontractors in their response.

Does your company use unmanned systems?

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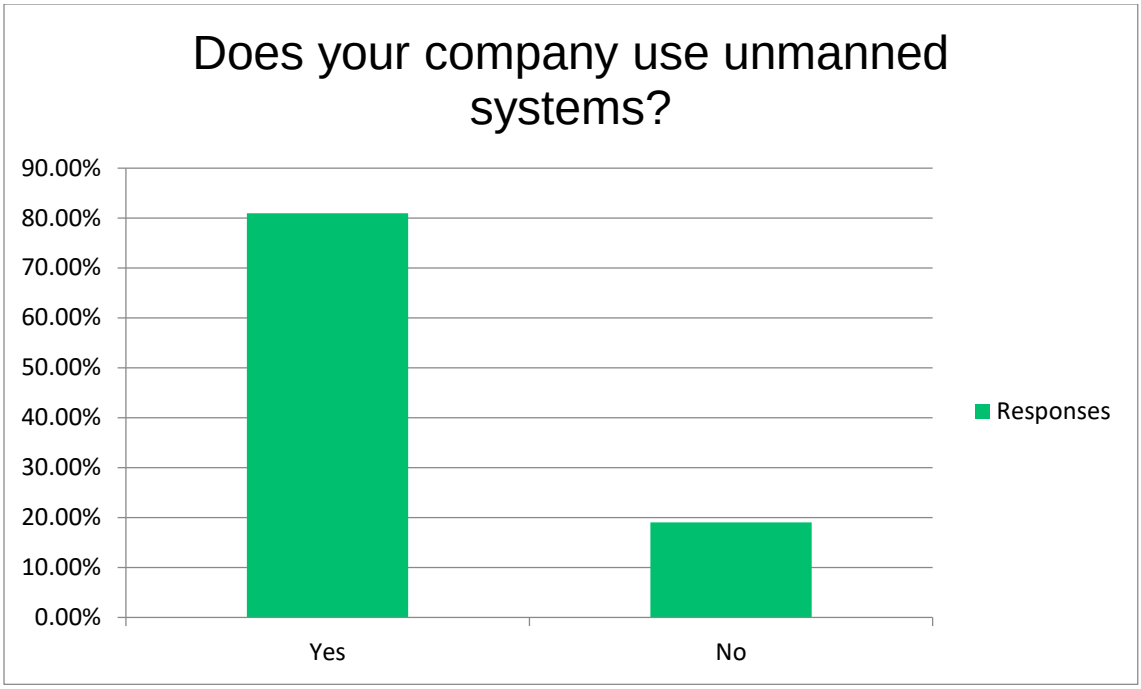

Almost 81% of the respondents indicated their company uses unmanned systems. 19% of the companies that responded noted their company does not use drones. This may reflect the fact that they only manufacture drones.

Which of the following unmanned systems does your company use?

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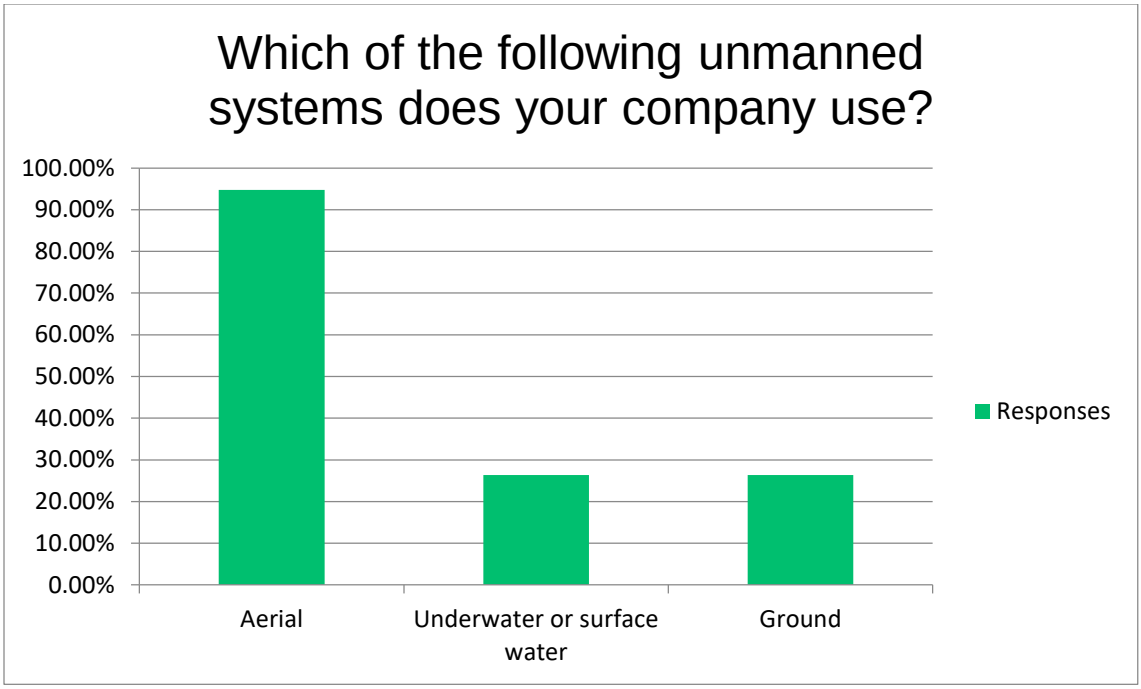

The vast majority of the respondents, 94%, reported that their company uses unmanned aerial systems. 26% of respondents reported their companies using ground or surface unmanned systems, with another 26% reporting the use of underwater unmanned systems.

Does your company manufacture any type of unmanned systems?

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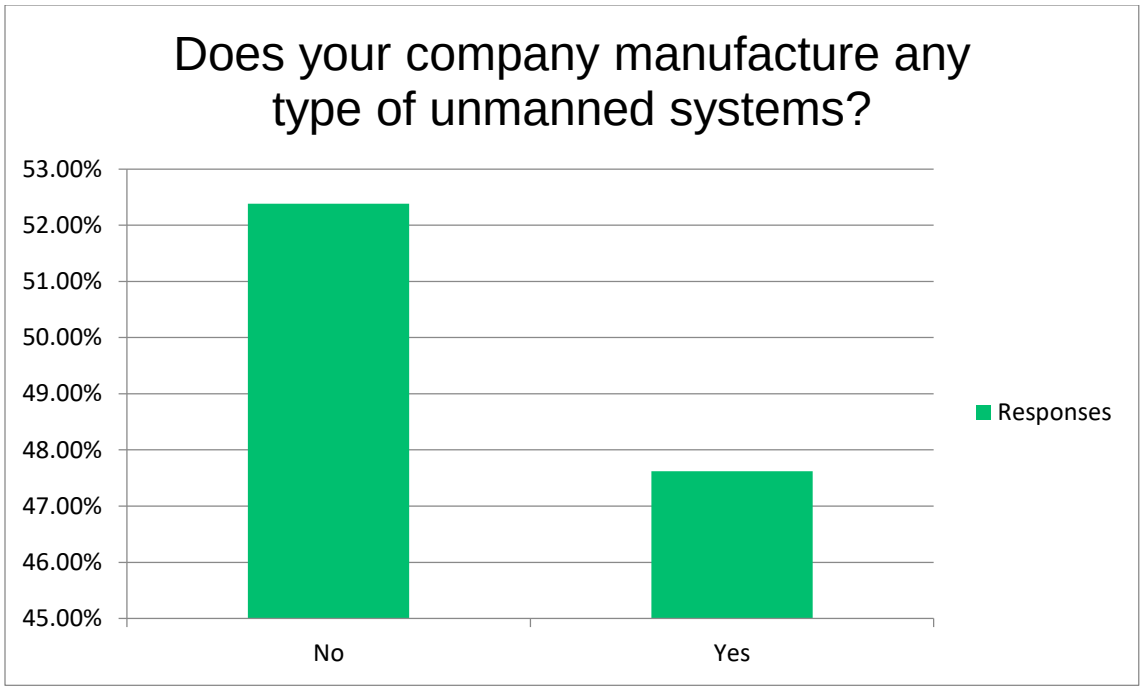

52% of the respondents conveyed their company manufactures drones. In discussions, several companies have conveyed they modify drones they have purchased for their own purposes. This is typically done to attach sensors, cameras or install software.

Does your company use unmanned systems in operations?

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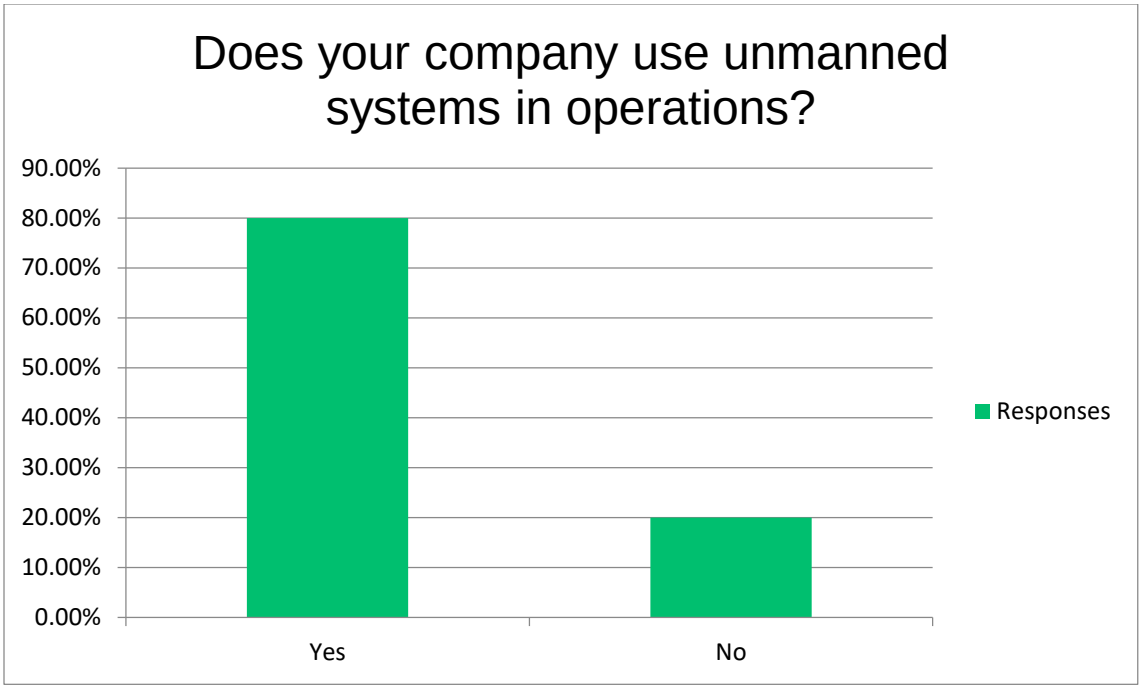

80% of the companies use the drones they manufacturer in their operations.

How many employees does your company have in San Diego?

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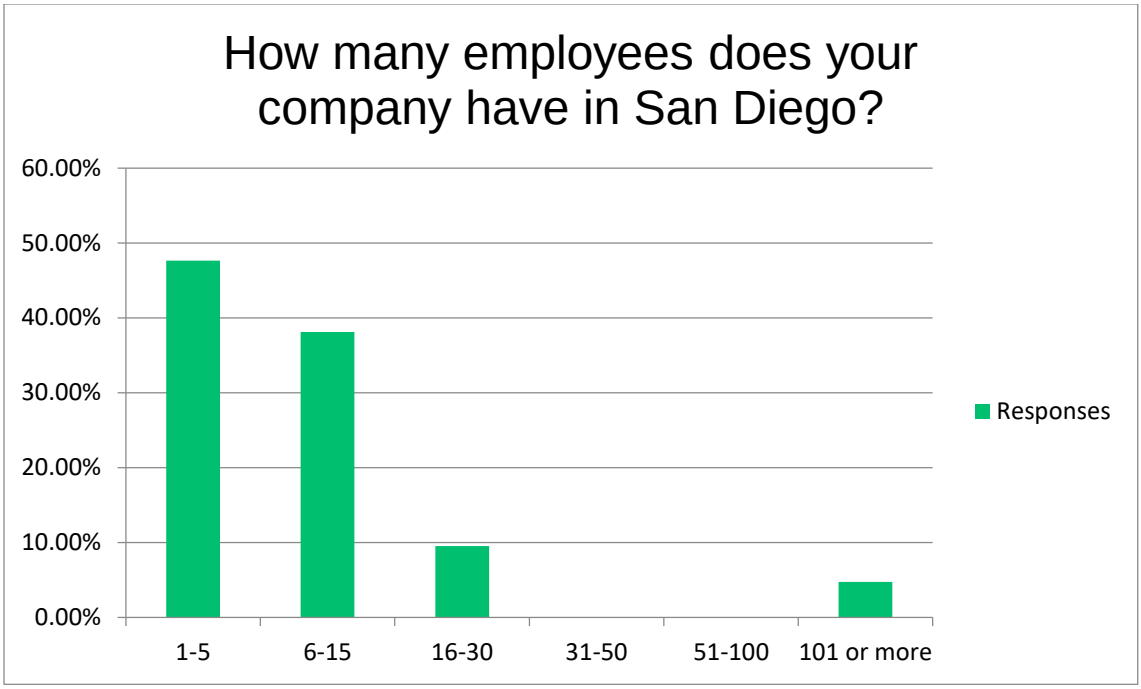

SCEDC requested information about their existing workforce. All but 1 of the companies that participated in the survey had 30 employees or less. 47% of companies had 1-5 employees, 38% had 6-15 employees, 9% of the companies had 16-30 employees and 5% had 101 or more. This is reflective of the drone industry being a relatively new industry with numerous companies at the start-up or beginning stages of their lifespan.

What are the top 3 most in-demand jobs at your company?

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The most in demand job reported by respondents was software engineers. Some noted the need for software engineers with a clearance from Department of Defense. 50% of the respondents want Unmanned Aerial Systems (UAS) Remote Pilot License Part 107. In addition to programming experience, 20% of the companies wanted some type of UAS or flying experience. Overall, over 50% of the respondents preferred their candidates have some type of degree. Several of the companies indicated they wanted their candidate to have a Bachelor of Science degree, however, other companies indicated only an Associate's degree was necessary. There was a direct correlation between the desire to have software engineers and the desire to have candidates with a 4-year degree. Roughly 50% of companies mentioned the need for their employees or company to have a security clearance. Respondents conveyed that a security clearance is not always necessary for the type of work conducted, but is dependent on the job, contract, or location of where the work is being conducted. In some instances, this was related to the companies need to bond, while others were related to where the company was going to perform their drone related work. Some noted their work may involve military clearance and as such a military clearance from the Department of Defense was necessary.

There were a variety of answers to the second most in demand job. Respondents noted a need for electronic and electrical engineers. This tied with remote sensing/camera operators. For the latter type of jobs, they noted a degree may not be necessary, however, the Federal Aviation Administration (FAA) Part 107 license was again the most requested certification from the respondents. The skill sets included the need for special data interpretation and several respondents suggested military knowledge.

The third most cited in demand jobs were photography, video production and observation/technician. The vast majority of respondents noted a degree was not required for these jobs and had a wide variety of skill sets listed as needed.

When hiring an employee, what type of skill training does your company most frequently need to prepare an employee for the job?

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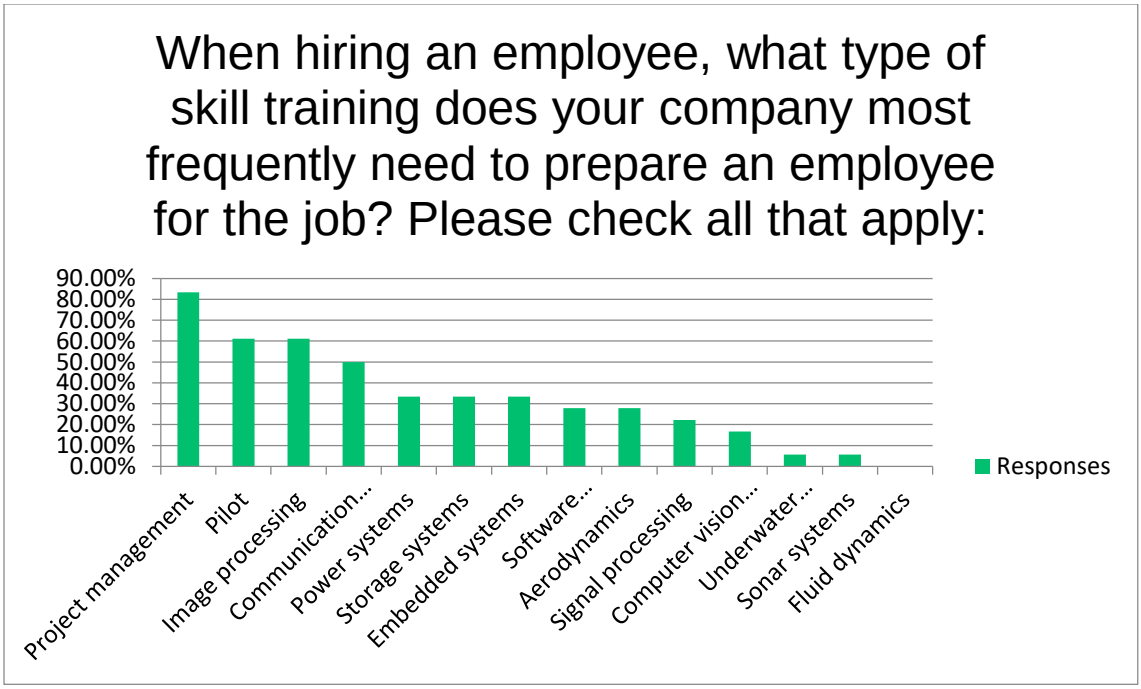

83% of respondents identified Project Management as the most needed skill training. 61% of respondents conveyed a need to train employees on piloting and image processing. Half of the respondents said that communications systems, including wireless communication systems, was the skill training their company most frequently needed.

Are you finding qualified entry-level candidates to fill openings in the San Diego region?

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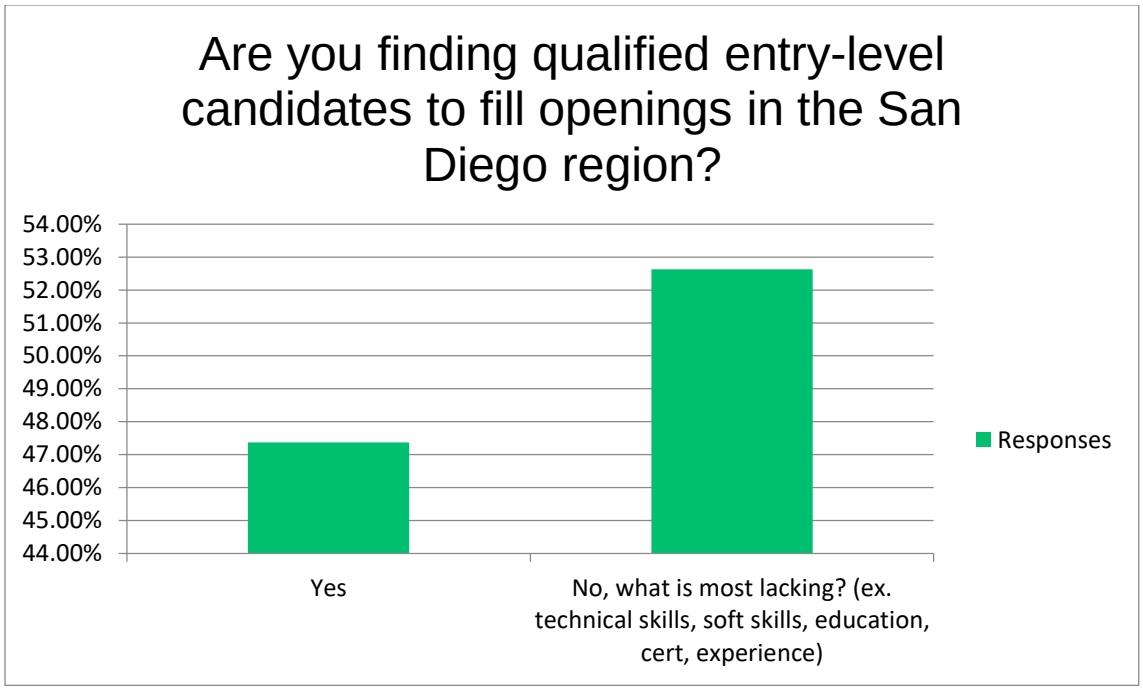

Finding the "right entry - level candidate" to fill an opening has been challenging for 52% of the respondents.

Are you finding qualified experienced candidates to fill openings in the San Diego region?

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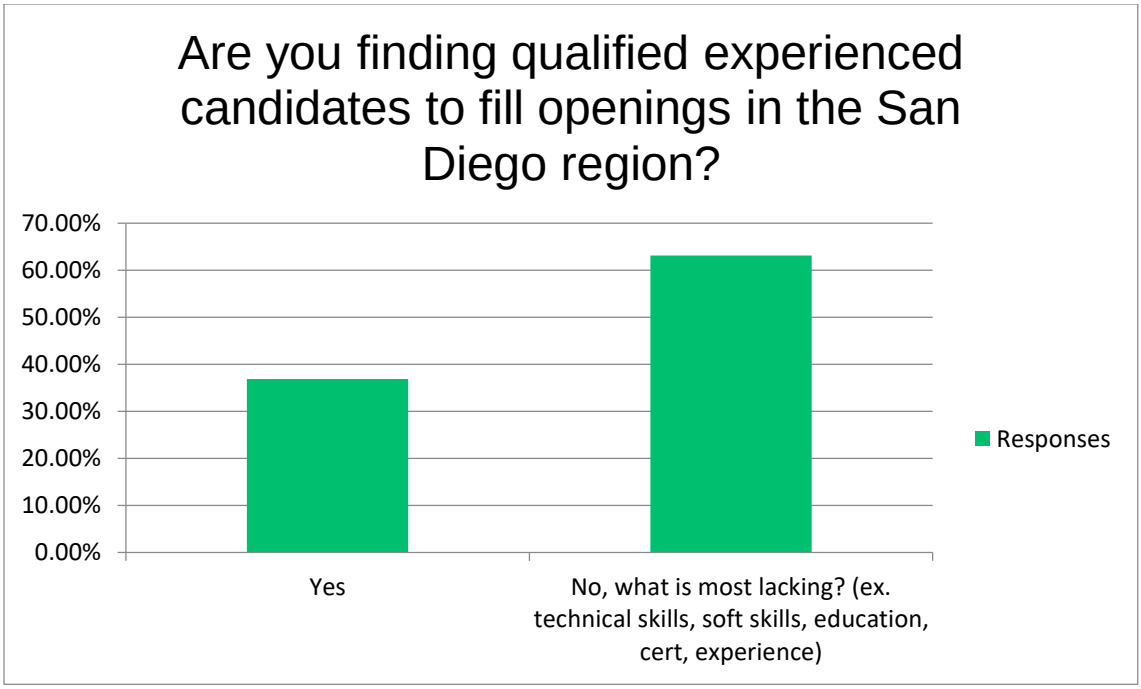

Over 60% of the respondents indicated they had difficulties finding "qualified experienced candidates." Some respondents believe this is due to the stage of their company, citing they are "too busy to recruit" or that their company is "still in the experimental stage." Other companies conveyed that because the industry is still new, finding employees who have hands-on experience and technical skills is challenging. They indicate there is a lack of local talent. They attributed their inability to tap into the small local talent pool as compounded by competition from large employers, suggesting that when a potential employee has the experience needed, they are unable to compete with a larger company's opportunities or salaries.

Do you anticipate the need for a greater skill-set or new type of employee within the next 5 years?

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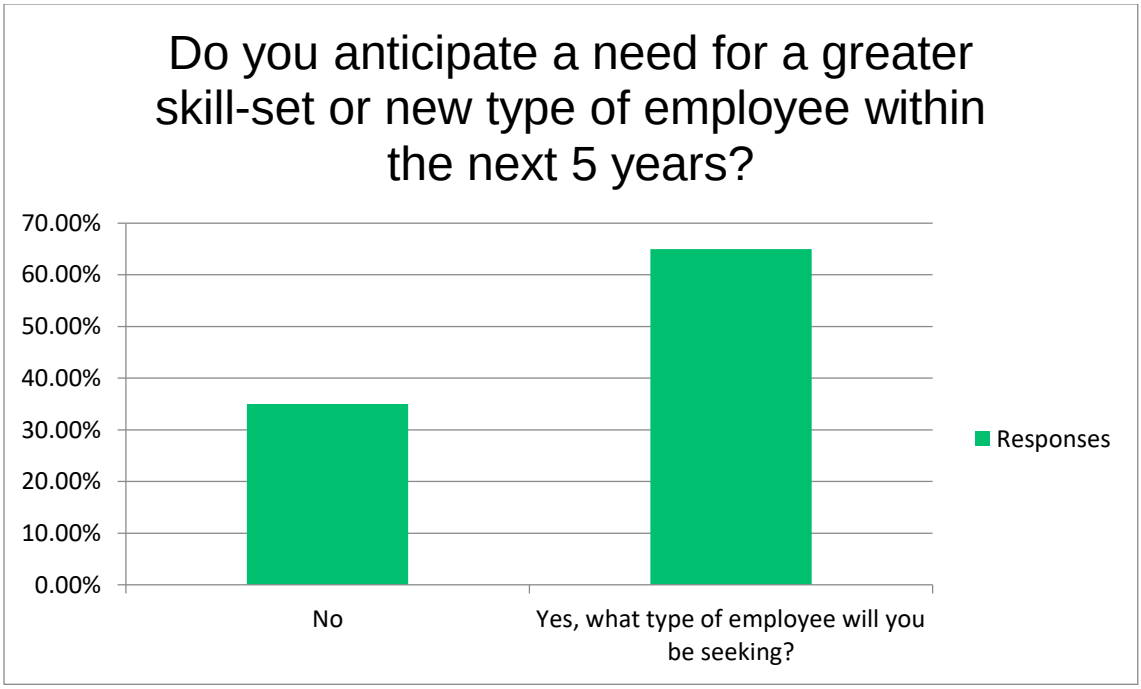

65% of respondents anticipate the need for a greater skill-set or a new type of employee within the next 5 years. Several businesses noted they anticipate a greater need for supportive positions, such as human resources, contract administration, marketing, project management and business development related positions. These are typical in growing companies. Yet, they also noted the need for software/embedded systems engineers, electrical, mechanical and aerospace engineers and pilots and technicians. They also note a need for instructors and trainers specific to unmanned systems.

Is there additional or specialized training needed for those jobs of the future?

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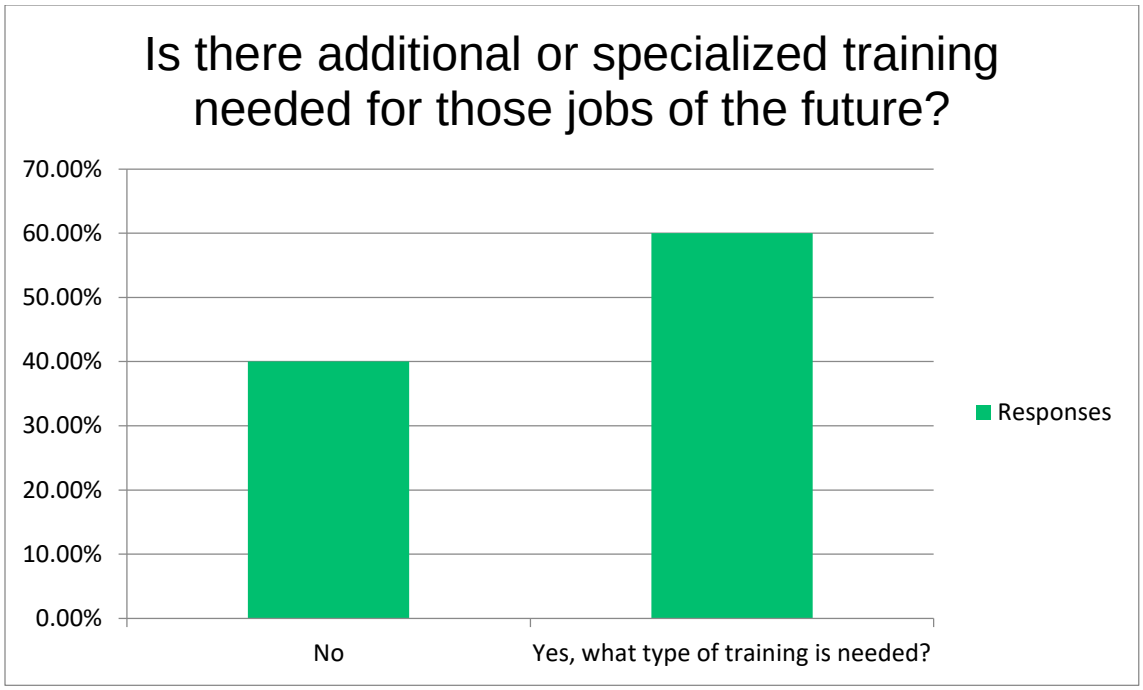

Several respondents noted a desire to hire employees with aviation and/or aerospace experience.

Findings:

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Many small to mid-size San Diego companies that are involved with unmanned systems are having a difficult time finding qualified employees. There appears to be a critical need for software/computer engineers. Most of the companies require their employees to have the ability to obtain a security clearance and most prefer their employees to have some type of aviation or aerospace experience, including a FAA Part 107 license/certification. Being that many companies identified knowledge of military language or DOD clearance, there appears to be a homegrown opportunity with the amount of military personnel stationed in San Diego. Retraining of these individuals to work in the unmanned systems industry could increase the desired labor pool substantially, given that most will already have security clearance and some will have aviation/aerospace experience.

There appears to be a wide spectrum of careers available in this industry. Respondents noted that some in-demand jobs required degrees and that others did not. Adding a drone component to existing curriculums for subjects such as geology, real estate, photography, oceanography, engineering etc., would lend itself to having professional expertise in a specific field, with an added skill set of drone operations. Together, both skill sets can be utilized to increase efficiency and productivity in the specific field. In other words, drones are tools that can be used as a more efficient way to gather data or perform functions. Drones cross over into many other industries, thus it would beneficial to include drone piloting into existing curriculums.

Many companies that use drones also manufacture drones. Many of those same companies use their own drones to perform their services/tasks. During a recent meeting with representatives from the Federal General Services Administration, they indicated there will be a new emphasis on the purchasing of drones manufactured in the U.S. This presents a great opportunity for companies in San Diego that create their own drones. Preparing for an increase in the local labor pool to manufacture drones could be advantageous.

Lastly, while all companies talked about information gathering, the survey did not reflect the “big data dump” that industry representatives have informed us of previously. They have conveyed that using unmanned systems will allow for the collection of much more data. However, they do not think that there is currently a workforce that is ready and able to interpret this data or display it in user friendly formats. As such, SCEDC requests that the San Diego Workforce Partnership conduct a separate study to verify industry workforce needs and develop a plan to address it accordingly.

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