2016 Higher Education
Chief Information Security Officer Study

By Wayne A. Brown, Ph.D.
Center for Higher Education
Chief Information Officer Studies, Inc.

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My wife and I, as volunteers, spend a great deal of time working on CHECS initiatives, but CHECS also takes a financial commitment and the CHECS sponsors are another group I want to acknowledge. I could not continue this work or the other CHECS initiatives without their generous support. The sponsors are as committed as we are to the higher education technology profession. If you see one of the CHECS sponsors, please be sure to thank them for their help with this work.

The CHECS’ advisory board is another active, significant group, and we could not have

‘...the CHECS advisory board has been very active and we could not have accomplished some of our recent efforts without their enthusiastic support.’

accomplished some of our recent efforts without their enthusiastic support. The all-volunteer board has devoted countless hours to expand and realize CHECS’ mission: Contributing to the education and development of the CIO in higher education. Our esteemed board of CIOs, CISOs, TLs, Presidents, and sponsor representatives have selflessly shared their thoughts and experiences to benefit the higher education technology leadership field. In 2015 and 2016, we brought on several new sponsors and started a subscription model for higher education institutions. In 2014, we launched our first Chief Information Security Officer (CISO) study. We also launched a successful webinar series bringing study results and respected guest panelists together for lively, informative discussions. Our webinar topics ranged from study results to the process of applying and interviewing for the CIO position. These initiatives are due in part to our distinguished advisory board and our sponsors. Look for more CHECS initiatives soon.

As you may know, CHECS is a nonprofit organization. We do not have a paid staff. Funds raised through report sales, subscriptions, and resume services help CHECS in support of its mission. To that end, we have endowed perpetual academic scholarships at four institutions, benefitting technology students at different levels of education. Each year, a $1,000 scholarship is awarded to
a technology student in each program. The scholarships were created to recognize influential technology or education leaders who have left a lasting mark on CHECS’ studies. Through these scholarships, CHECS is helping future technology leaders who may, someday, take over the CIO-reins within higher education. The scholarships are:

- **The Dr. Trudy Abramson Scholarship**, Nova Southeastern University, Fort Lauderdale, Florida - $1,000 scholarship to a doctoral candidate
- **The Dr. Polley Ann McClure Scholarship**, University of Texas, Austin - $1,000 scholarship benefiting for undergraduate women and minorities
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The research, the scholarships, the webinars—these are all efforts in line with CHECS’ mission. Our mission could not be achieved without your continued support. Thank you again.

Best regards,

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Executive Summary

In July 2016, higher education CISOs and CIOs were invited to participate in a CHECS CISO survey. Both surveys contained some identical questions to gather data from different perspectives. Thirty-nine percent of the CIOs who participated in the survey indicated they also served as the CISO. Data collected from this group of CIO/CISO are presented separately for some subjects. In addition, results from the CHECS 2016 CIO and Technology Leader research are also presented as a comparison to the CISO.

The average higher education chief information security officer in 2016 was a white male who was under 51 years old. He held a master’s degree with a technology major but his supervisor believed a bachelor’s degree was sufficient for the CISO job. He was an internal candidate for his current position and held the CISO title. He spent just over five years in his current position and planned on retiring in the next 15 years. He was a CISO or information security officer in his last position and had a career path that saw him spending close to 15 years working in a higher education IT department.

The CIOs and CISOs disagreed about the five most important skills needed to do the CISO job. The CISO named communication, leadership IT security best practices, technical knowledge and interpersonal skills while the CIOs did not name leadership or interpersonal skills as needed CISO skills. When asked about preparation for the CISO job, the CIOs and CISOs were on the same page – mentored by a CISO was the most frequently selected answer while on-the-job training was one of the three most frequently selected answers.

There has been a great deal of conversation in the CISO press and literature about the need for the CISO to report to the President and serve on the institution management team but that configuration has not been common in higher education. The average CISO reported to the CIO and less than a quarter of them served on the IMT.

The most commonly used security model was the National Institute of Standards and Technology (NIST) followed by a combination of NIST and other models. The CISOs indicated their security program was maturing. Almost two thirds of CISOs said they had a security budget and almost all of them had someone dedicated to information security. However, almost a third of the CISOs indicated they had suffered a disruption or breach in the last three years.

It was interesting to note there were a third of the CIOs in this survey who indicated they were also the CISO. This group of CIOs lacked the resources, staffing or security program maturity of the CIOs or CISOs but less of them indicated they had been the victim of a disruption or breach.

The CIOs and CISOs agreed on the relative importance of the six CISO roles with Strategist, Architect, and Traditional Security Operations at the top of the list. However, the two groups disagreed about the CISOs effectiveness in the six roles and the CIO rated the CISO lower than the CISOs rated themselves. The CISOs rated themselves as most effective when operating in the Profession Advocate role, the least important role.
INTRODUCTION

The higher education chief information security officer (CISO) is similar to the higher education chief information officer (CIO) from the mid-1990s. The CISO also bears some resemblance to the CIO of 2016. The two groups suffer misunderstandings about the skills and education required to serve in the positions. For instance, the CIO’s peers or supervisors on the institution management team (IMT) believe technical knowledge is very important but technical knowledge often does not make the CIO’s top five list of required CIO skills. CISOs have a similar challenge in that the CIO (who supervises the vast majority of CISOs) believes a CISO should be very technical while the CISO indicates more soft skills are needed to do their jobs. The literature on the higher education CISO is sparse and some of it is based on small sample sizes or anecdotal information. It is obviously an important role and we do know the threat to higher education institution systems is very real.

The CISO position and the people in it have risen through the IT department and the position continued to mature. There is a great deal of speculation that the CISO position should report to the President and serve on the IMT. Indeed, IBM reported there was a drive to expand CISOs’ responsibility so it was not just a defensive position (van Zadelhoff, Lovejoy, & Jarvis, 2013).

In July 2016, higher education CISOs and CIOs were invited to participate in a CHECS CISO survey. Both surveys contained some identical questions to gather data from different perspectives. Thirty-nine percent of the CIOs who participated in the survey indicated they also served as the CISO. Data collected from this group of CIO/CISO are presented separately for some subjects. In addition, results from the CHECS 2016 CIO and Technology Leader research are also presented as a comparison to the CISO (Brown, 2016a, 2016b).

This report is divided into three sections. The first section examined CISO characteristics. The second section reviewed the security programs at institutions, and the final section reported on the importance of CISO roles and their effectiveness operating in those roles based on CISO and CIO assessments.
**CHARACTERISTICS OF THE CISO**

**Age**

Over the three years this research has been done, the higher education CISOs were a younger group than the higher education CIOs. As in the two previous iterations of this work, there were less than 50 percent of the CISOs who were 51 years or older (Chart 1).

**Chart 1. Age of CISOs**

The chart below depicts the percentage of CISOs who were 51 years old or older for the three years this research has been conducted.

**Chart 2. CISOs 51 Years Old or Older, 2014-2016**
The chart below depicts a comparison of CISOs, Tech Leaders (TL), and CIOs who were 51 years old or older in 2016. The TLs are the individuals in the next organizational layer down from the CIO. Two thirds of CIOs were 51 years old or older while 59 percent of TLs were in that same category.

**Chart 3. TL, CISO, and CIOs over 51 Years Old in 2016**

![Chart 3](image)

**Gender**

As demonstrated in all the CHECS research, higher education technology leadership positions are overwhelmingly held by men. While the percentage of CIOs who were women reached a new high in 2016, the trend may not continue when considering the TL pipeline for the CIO position. The CISOs, who are TLs, were no different. In fact, there were less female CISOs, 14 percent, than either the CIOs or TLs. The lack of diversity may be due to the CISOs rise through the IT department ranks and specifically the network group. This disparity is even more pronounced when you consider in 2015, more than 56 percent of higher education students were women ("Almanac Issue 2015-2016," 2015).

**Chart 4. Gender**

![Chart 4](image)
The chart below depicts the percentage of CISOs who were female from 2014 to 2016. The percentage has declined from 19 percent to 14 percent in the three years this research has been conducted.

**Chart 5. Female CISOs, 2014-2016**

In 2016, the percentage of female CIOs continued to rise and reach a new high of 28 percent (chart below). For the TLs, the percentage of females was more than double that of the CISOs, but the TL percentage was a decline from the 2014 TL high of 39 percent.

**Chart 6. Percentage of Female CISOs, TLs, and CIOs in 2016**

The CISO respondents are broken down by gender and age group in the chart below. The data revealed 60 percent of the female CISOs were in the 56-60 and 61-65 age group compared to 27 percent of the male respondents in those same age groups. Another 30 percent of the female CISOs were in the 41-45 age bracket (chart below). This high concentration of the female CISOs in older age ranges may have a negative impact on the percentage of CISOs who are women in the future.
In comparison, almost 17 percent of the male CISOs were 40 years old or younger and another 27 percent were between 46 and 55 years old.

**Chart 7. CISO Age and Gender**

![Chart showing age distribution of CISOs by gender]

**Race**

CHECS research has shown higher education technology leadership is not a racially diverse group. CISOs were no different from the TLs and CIOs. There were 94 percent of the CISOs who were White. One percent were American Indian or Alaska Native and four percent were Asian. Four percent declined to answer (chart below). As a comparison, in 2015, 53 percent of higher education student enrollments and 74 percent of the U.S. population were White ("Almanac Issue 2015-2016," 2015).

**Chart 8. CISO Race**

![Pie chart showing race distribution of CISOs]

- American Indian or Alaska Native
- Asian
- Black or African American
- Native Hawaiian or other Pacific Islander
- White
- Decline to answer
The percentage of CISOs who were minorities has fluctuated between five and nine percent. The chart below depicts the percentage of CISOs who were minorities from 2014-2016.

**Chart 9. Minority CISOs, 2014-2016**

![Chart 9. Minority CISOs, 2014-2016](image)

The 2016 percentage of minorities holding CISO, TL, and CIO positions are compared in the chart below. The small percentages of minorities in these roles do not reflect the population they work with or the population they serve.

**Chart 10. Percentage of Minority CISOs, TLs, and CIOs in 2016**

![Chart 10. Percentage of Minority CISOs, TLs, and CIOs in 2016](image)

The CISOs were asked whether they were Hispanic. The results are in the chart below. Nine percent of the CISOs reported they were Hispanic. Another six percent declined to answer. The percentage of higher education students in the United States who were Hispanic was more than 14 percent in 2015 ("Almanac Issue 2015-2016," 2015).
Chart 11. Percentage of Hispanic CISOs

The chart below shows the percentage of CISOs who were Hispanic from 2014 to 2016. The result has ranged from five percent in 2015 to nine percent in 2016.

Chart 12. Hispanic CISOs, 2014-2016

While the percentage of Hispanic CISOs was below 10 percent, it was a greater percentage than either CIOs or TLs. The results CISOs, TLs, and CIOs are presented in the chart below.
Institution Types

The CISO is a new position in higher education and in some institutions, it may not exist at all. In fact, in many institutions, the CIO continues to be the executive who is responsible for information security. However, as cyber threats become more prevalent, one would hope a dedicated position would be funded and filled. Nevertheless, the CISO position may not be found in every institution or in large numbers among every institution type. Thus, in this research, the represented organizations in this study did not reflect the overall makeup of U.S. higher education institutions. For example, this study had a majority of responses (56 percent) from doctorate level institutions while, according to the *Chronicle of Higher Education* in 2012 only six percent of institutions were doctorate. The following chart illustrates the higher education institution types in the United States according to the *Chronicle of Higher Education* and the responding CISOs in 2016 (*Almanac Issue 2012-2013*, 2012).

Chart 14. Institution Type Distribution

Tenure

The average time in current position for the CISO, TL, and CIO is depicted in the table below. CIO tenure rose to six years and eight months. The TLs were the second longest average tenure at six years and one month. The CISO’s average tenure was the shortest of the three groups at five years and 3 months.
Table 1. Tenure in Current Position for 2016

<table>
<thead>
<tr>
<th></th>
<th>CISO</th>
<th>TL</th>
<th>CIO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Years</td>
<td>5</td>
<td>6</td>
<td>6</td>
</tr>
<tr>
<td>Months</td>
<td>3</td>
<td>1</td>
<td>8</td>
</tr>
</tbody>
</table>

The tenure for the CISO rose in 2015 and leveled off to remain the same in 2016. The chart below depicts the tenure in current position for the CISOs from 2014 to 2016.


Retirement Plans

Almost 50 percent of the higher education CIO population has consistently predicted their retirement in the next 10 years. While the CISOs were a younger group than the CIOs, 36 percent of them were predicting retirement in the next ten years. The CISO retirement predictions are illustrated in the following chart.

Chart 16. CISO Retirement Plans
The percentage of CISOs predicting retirement in the next ten years has remained constant in the mid-30 percent range for the past three years. The results are depicted in the chart below.

**Chart 17. Percentage of CISOs Retiring in 10 Years, 2014-2016**

A comparison for the ten-year retirement projection for CISOs, TLs, and CIOs is depicted in the chart below. The CIO projection reached a new high of 53 percent in 2016. The TL and CISO result were similar to each other.

**Chart 18. Projected Retirement in Next 10 Years**

The retirement plans of the male and female CISOs were compared and the results are in the chart below. In the next decade, 50 percent of the female CISOs plan to retire versus 33 percent of the
male CISOs. This prediction aligns with the age differences reviewed earlier in this section of the report. This result may ultimately drive down the percentage of CISOs who are women.

**Chart 19. CISO Retirement Plans by Gender**

The following table depicts the CISO retirement plans by age groups and gender. A comparison between the genders is difficult because all of the female CISOs were represented in four age groups: 41-45, 51-55, 56-60, and 61-65, while men were represented in age groups from 26 to 65 years old.

When confining the analysis to the age groups where women were represented, there were some differences between the genders. For instance, 100 percent of the women between the age of 51 and 55 were predicting they would retire within the next 5 years, while 82 percent of the men in that same age range had the same retirement plans. In the 56 to 60 age range, more male CISOs (92 percent) predicted retirement in the next 10 years compared to female CISOs (67 percent).
### Table 2. CISO Retirement Plans by Gender and Age

<table>
<thead>
<tr>
<th>Gender</th>
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<th>6-10 years</th>
<th>11-15 years</th>
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<td>6%</td>
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### Previous Positions

As mentioned in the introduction to this report, there were similarities between the higher education CIO and CISO position evolution. For instance, the majority of both positions were filled by people who rose through traditional IT department positions. The CISOs were asked for the job titles for their last two positions prior to assuming the senior information security role. By examining these previous positions, a career path takes shape for the CISO role.

The following chart lists the positions held by CISOs prior to their current post. Twenty-nine percent of the respondents held the CISO or senior security position in their last job. Another 14 percent were information security directors or managers. As noted above, 92 percent of current CISOs held roles considered to be traditional IT department positions.
The chart below contains the job titles CISOs held two positions prior to their current post. This list is more varied than the chart above. However, 84 percent of the respondents indicated they held positions typically found in an IT department. Clearly, the path to become a CISO has been carved through the technology department. Auditor, consultant, and faculty combined accounted for nine percent of the responses. Another four percent of the respondents were military.
Chart 21. CISO Two Positions Prior Title

CISO Sector for Last Position

There has been some conjecture about which industry higher education CISOs came from. The CISOs were asked about the sector they worked in for their last position. A choice of five sectors was provided: Higher Education, Public (local, state, or federal government), Healthcare, Commercial/for profit, and Nonprofit outside of higher education. The figure below depicts the responses by sector. The majority of CISOs, 73 percent, came from Higher Education. Another 16 percent of CISOs were from the Commercial/for profit sector. The other three sectors collectively accounted for 11 percent of the CISOs.

Clearly, the higher education CISO rose through the ranks of a higher education IT department. The average time in current position for the CISO whose last position was in higher education was five years versus the CISO whose last position was in the commercial sector was four years and two months.

Figure 1. CISO Sector for Their Last Position
During the three years the CHECS CISO research has been conducted the percentage of CISOs whose last position was in the commercial sector has declined by nine percent (chart below). The 2014 to 2016 results are in the chart below. This decline could be related to the increasing maturity of higher education information security professional development programs and career paths.

**Chart 22. CISO Commercial Sector for Their Last Position, 2014-2016**

In the CHECS CIO research, the higher education CIOs also provided information regarding their last position sector. The following chart compares the sectors CIOs and CISOs migrated from to their present position. The results were similar. There were 75 percent of the CIOs who were from Higher Education and 73 percent of the CISOs who were from Higher Education. The difference between the two groups for those who came from the commercial sector was only one percent.
The chart below illustrates several CISO comparisons grouped by the five sectors. The number of survey respondents from the Public, Healthcare, and Nonprofit outside higher education were small. As a result, this section focuses only on the data from the Higher Education and Commercial sectors.

The greatest differences between the Higher Education sector CISOs and those from the Commercial sector were in the advanced degree and IMT members comparison. Sixty-five percent of the Higher Education CISOs had an advanced degree compared to 45 percent of the Commercial sector CISOs. For IMT membership, 27 percent of the Higher Education CISOs were members of the IMT versus six percent of the CISOs who came from the Commercial sector.
Prior Work Experience

The CIOs in the CHECS research have a rich and varied career background. Gathering information on prior work experience provides more data about where the senior IT leader had spent time preparing for the CIO role. This same information about the CISO career paths may also be helpful for the information security profession. CHECS collected data about prior work experience, including how long CISOs had spent working in each of four different sectors. The CISOs selected one of four sectors where they have worked during their career. The four general areas are listed below.

- Higher Education Technology
• Technology Not in Higher Education
• Higher Education Not in Technology
• Outside of Higher Education and Technology

**Figure 2. CISO Prior Work Experience Areas**

Overall, higher education CISOs spent the bulk of their career in technology, whether it was in or out of higher education. On average, the CISOs spent more than half of their careers (14.25 years) working in IT Inside Higher Education. The next closest area was IT Outside of Higher Education at 8.14 years (figure below).

**Figure 3. Average CIO Area Work Experience**

The CISOs obviously had roots in a technology background. They had spent, on average, over 22 years working in IT in or outside of higher education. Conversely, they had only spent five years working outside of technology in higher education or outside of higher education and IT. While
the CISOs had spent some time working in technology outside of higher education, their time in higher education was almost twice as much (chart below).

**Chart 25. Average CISO Work Experience Inside and Out of Information Technology**

The chart below depicts the CISO internal hires from 2014 to 2016. The percentage of CISOs who worked in their institution before they were hired as the CISO has always been above 50 percent. It reached a new high of 57 percent in 2016.

**CISO Internal Candidates for Current Position**

Internal candidates for a CISO role may wonder about their competitiveness for the position. In the CHECS CIO research, a significant percentage of the CIOs were employed by their current institution prior to being selected for the CIO position. In 2016, 57 percent of the CISOs indicated they were employed by their current institution before being selected as the CISO.

**Chart 26. CISO Position as an Internal Hire**
The following chart illustrates a comparison between 2016 CIOs and CISOs who were internal candidates for their current positions. A higher percentage of CISOs, 57 percent, were selected from within the institution for their role than CIOs, 43 percent.

**Chart 27. Internal Hire CISOs, 2014-2016**

![Chart 27. Internal Hire CISOs, 2014-2016](image)

The chart below depicts a comparison for CISOs who were internal and external candidates for their current positions. The chart provides a comparison for gender, retirement plans, advanced degree, reporting to the CEO, and IMT membership.

**Chart 28. Internal Candidates 2016**

![Chart 28. Internal Candidates 2016](image)

There were more of the internal candidates—20 percent—who were women compared to seven percent of the external candidates. For the ten-year retirement projection, 41 percent of the internal candidates were predicting retirement in the next decade compared to 30 percent of the external candidates. Seventy-four percent of the external candidates had an advanced degree versus 58 percent of the internal candidates. This advanced degree difference might indicate candidates for the CISO position with an advanced degree have an advantage over those who do not have an advanced degree. Lastly, 30 percent of the internal candidates were members of the IMT while only 13 percent of the external CISOs had that membership.
Chart 29. Internal/External CISO Comparison

Current CISO Titles

Including the word “chief” in a wide variety of executive titles is a trend that started in the 1990s. Initially, there was a great deal of debate about whether it should be done and for which positions. It was more than a decade after the establishment of the senior IT position before the majority of the senior technology executives in higher education added CIO to their titles.

The title for the senior information security officer seems to have defaulted to CISO much quicker than the CIO. The senior information security officer titles are shown in the following chart. CISO was the most frequently listed with 49 percent of the respondents holding that title. Another 24 percent reported holding the information security officer title.

Chart 30. Current Title of CISOs
Degree Level

It should be no surprise that higher education executives are expected to have an advanced degree. After all, it is the industry they work in. In the CHECS CIO and TL research, two-thirds or more of the survey respondents held an advanced degree. Moreover, the IMT respondents almost unanimously indicated an advanced degree requirement for the CIO position. In 2016, the percentage of CISOs who held an advanced degree continued to rise with 64 percent of CISOs holding an advanced degree (chart below).

Chart 31. Degree Level for CISO

The percentage of CISOs with an advanced degree has increased by five percent since this question was first asked in 2014. The chart below shows the percentage of CISOs with an advanced degree from 2014 to 2016.

Chart 32. Percentage of CISOs with Advanced Degree, 2014-2016

The chart below depicts an advanced degree comparison for CISOs, CIOs and TLs for 2016. The CISOs had the smallest percentage of respondents with an advanced degree among the three groups. The percentage of TLs with an advanced degree has steadily increased since CHECS began
collecting degree-held data in 2009. CIOs with an advanced degree has been relatively steady since 2003, when CHECS CIO research began.

**Chart 33. Advanced Degree for CISO, CIO and TL**

![Bar chart showing the percentage of CISOs, CIOs, and TLs requiring advanced degrees.]

The CISOs and CIOs were asked for their opinions about what degree was necessary for the CISO position. Sixty percent of the CISOs indicated an advanced degree is required for the CISO position. The full breakdown of CISO responses is illustrated in the chart below.

**Chart 34. CISOs: Degree Required for the CISO**

![Pie chart showing the distribution of required degrees for CISOs.]

The most frequently selected answer for the required CISO degree according to the CIOs was a bachelor’s degree. Less than half of the CIOs (42 percent) indicated CISOs should have an advanced degree.
Chart 35. CIOs: Degree Required for the CISO

The following chart provides a side-by-side comparison of the CIO and CISO responses regarding which degree was necessary for the CISO position. The challenge for some CISOs in higher education is they may believe it is important to be a part of the IMT and to also report to the President (Raths, 2016). However, being an IMT member and reporting to the Chief Executive Officer (CEO), may, likewise, come with higher expectations for the CISO in terms of the degree held.

In 2015, 90 percent of the IMT members expected CIOs to have an advanced degree. In the future, these IMT expectations for the CIO may become an obstacle to the CISOs joining the IMT and reporting to the CEO. This challenge will be further compounded when you consider the CIO does most of the hiring and supervision of the CISO and if they don’t consider something (like an advanced degree) important then they won’t hire for it.

Chart 36. Required CISO Degree Comparison

Degree Major

The CISOs were asked what their degree major was. As might be expected, Technology (37 percent) was the most frequently selected degree (chart below). As found in CHECS’ TL and CIO
research, there were a number of other degree majors represented. In the 2016 CIO and TL research, five majors represented three quarters of the responses: Business, Technology, Education, Administration, Leadership, and Management. For the CISO, these majors accounted for 69 percent of the total responses.

Chart 37. CISO Degree Major

The percentage of CISOs with a technology major has remained in the mid- to high 30 percent range over the life of this research. The technology major result from 2014 to 2016 is shown in the chart below.

Chart 38. Percentage of CISOs with Technology Major, 2014-2016
The Technology major was the most frequently selected response for the CISO and that should not come as a surprise for the CISO role. However, in the CIO and TL research, the Technology major has not been the dominating degree major. However, in 2016 that was changing. There were 32 percent of the CIOs and 24 percent of TLs who held a Technology major. For the TL, it was tied for first with the Business major for the most frequently given answer. The following chart depicts the percentage of CISOs, TLs, and CIOs who had a Technology major in 2016.

**Chart 39. Technology Major Comparison**

![Bar chart showing the percentage of CISOs, CIOs, and TLs with a Technology major in 2016.]

**CISO Degree Major Opinions**

CISOs were asked for their opinion about the degree major a CISO should possess. The single largest responses, both at 34 percent, was the Major is not important and Technology. These two responses were also the most frequently named CIO required degrees in the CHECS 2016 CIO research. The chart below depicts the CISOs’ opinion regarding what major is important for the career field.
CIOs gave the same top two responses as the CISOs. More than 50 percent of the CIOs indicated a CISO should have a Technology major (chart below). Another 35 percent stated the Major is not important. This CIO preference for a technology-focused CISO also revealed itself in the skills preference discussed in the next section of this report. As noted earlier in this report, these CIO preferences may find their way into the CISO job description and hiring practices as the vast majority of CISOs report to the CIO or someone who reports to the CIO.
Chart 41. CIOs: Degree Major Needed for CISO

The chart below depicts the two most frequently selected answers for the required CISO degree major according to the CIO and CISO: Technology and Major is not important. Eighty-nine percent of the CIOs selected one of these two answers compared to 68 percent of the CISOs.

Chart 42. Two Most Frequent Degree Majors Needed for CISO
Skills Needed by the CISO

The CISOs and CIOs were asked to select the five most important CISO skills from a list or provide their own choices. The list of choices was created using the CISO literature and feedback from practicing higher education CISOs and CIOs. The most frequently selected skills list and the percentage of CISOs and CIOs who selected them are displayed in the chart below.

Four of the five skills selected by the CIOs were IT-focused. Communications skills, which was the second most frequently selected skill, was the other skill selected by the CIOs. Gartner noted the CISO is expected to act as a “translator” for the functional areas and information security (Scholtz, 2013c). However, Gartner also claimed that “Many security professionals do not have the relationship-building skills that are crucial for making cultural change” (Scholtz, 2013a). It would stand to reason that the CISO should be hired for soft skills.

The “translator” expectation is also placed on the CIO. In the CHECS CIO research, one of the two most frequently named skills for the CIO role has consistently been communication. The CISO most frequently named skill was communication and four of the five most frequently selected skills were soft skills with only one technical skill in the top five.

In 2012, Gartner recommended hiring CISOs who understand the business of the organization (Proctor, 2012). However, a recent survey of executives found 68 percent of them did not think the CISO had this knowledge (Kontzer, 2014). Business knowledge, was only selected by 15 percent of the CIO respondents in the CHECS research. If the CIO, who hires and supervises the majority of CISOs does not believe the skill is important the skill won’t be intentionally hired for.

Clearly, the CIO viewed the CISO as a technical and policy-focused position while the CISO, who performs the role, viewed it as a position that required soft skills. Incidentally, the CIO faces this same dichotomy when CHECS examines CIO required skills according to the CIO and IMT. There is some difference in the skills the IMT respondents indicated a CIO needed and the skills the CIOs believed the CIO needed. This difference of opinion is important because IMT members may be interviewing, hiring, and supervising CIOs.
Chart 43. CISOs and CIOs: Skills Needed by CISO

![Chart showing skills needed by CISO and CIO](image)

**Actual and Ideal CISO Reporting**

Most executives would lay claim to the need to report to the CEO of their organization. This “needed” reporting relationship is claimed by the executive due to the importance or critical nature of the executive’s area of responsibility. Consequently, it is no surprise to find this same assertion about the CEO-reporting relationship in an area such as information security. It is interesting to note the higher education CIO, which has been in existence for much longer than the CISO, has only reached the 30 percent range for those CIOs reporting to the CEO. Furthermore, that percentage has been very steady since 2003. Gartner notes about CISO organizational configuration “There is no single recommended organization structure that works for all organizations” (Scholtz, 2012).

Gartner has reported the importance of CISOs being recognized and their reporting relationship being elevated to the CIO or similar level outside IT (Scholtz, 2013b). In addition, practicing CISOs have also made this assertion (Raths, 2016). However, Scholtz (2012) also points out “Security leaders often have unrealistic expectations about the ability of organizational change to solve problems in their security programs”. As depicted in the chart below, four percent of the CISOs reported to the CEO in 2016. In the CHECS 2016 CISO research, a total of 37 percent of CISOs reported within one level of the CEO.
Chart 44. CISO Reporting – Number of levels from CEO

The chart below depicts the percentage of CISOs who reported to the CEO from 2014 to 2016. The result has ranged between four percent and seven percent.

Chart 45. CISO Reporting to CEO, 2014-2016

The CIOs and CISOs in this study provided their actual reporting configuration as well as their ideal configuration. As in previous iterations of this CHECS research, the majority of CISOs, 86 percent, reported to the CIO (chart below). In addition, the most frequently selected answer for ideal reporting by the CISOs was CIO at 39 percent. The percentage of CISOs reporting outside
the IT department was six percent. Gartner found in a cross-industry survey that 58.6 percent of CISOs reported to the CIO (Scholtz, 2012).

**Chart 46. Chart CISO Reporting Title – Actual and Ideal According to CISO**

The chart below depicts the actual and ideal CISO reporting according to the CIO. There were 56 percent of the CISOs who reported to the CIO and 75 percent of CIOs indicated this was the ideal reporting relationship. The CIOs reported that six percent of the CISOs reported to the CEO and eight percent of the CIOs indicated this was the ideal reporting relationship.
The chart below depicts the CISO ideal reporting configuration according to the CIO and CISO. The most frequently given answer for both groups was CIO but the percentages were very different. Seventy-five percent of the CIOs indicated the CISO should report to the CIO while 39 percent of CISOs gave that same answer.

Thirty-six percent of CISOs believed reporting to the CEO was the ideal relationship. Less than ten percent of the CIOs gave the CEO answer. The remaining responses were small and distributed over different reporting arrangements.
Chart 48. Most Frequently Selected Ideal CISO Reporting Titles

The following chart illustrates the reporting structure in terms of the number of levels separating the CIO and CISO from the CEO. Zero level represented a direct report to the CEO. CHECS’ studies have consistently found since 2003 that 97 percent or more of the CIOs reported within one level of the CEO.

While there is a great deal of information in the industry literature which suggests the CISO should report to the CEO, this arrangement has not become a reality for the majority of CISOs. Given the importance of this position and the number of information security threats directed against an institution, it is a concern that 63 percent of the CISOs report two or more levels away from the CEO.

Chart 49. CIO-CISO Comparison for Reporting Levels from CEO
IMT Membership

The institution management team (IMT) is the group of executives who lead the institution. This group may be called the cabinet, executive staff, or other term. As with the CEO reporting relationship, many executives believe they must serve on the IMT to be effective in their role. Membership on this group may give the executive the ability to have a significant influence on the organization and, overall, raise their profile. In this research, 23 percent of the CISOs were members of the IMT (chart below). While some believe the CISO should be (or already is) a part of the IMT, in higher education IMT membership status for the CISO is infrequent.

Chart 50. CISO IMT Membership

The percentage of CISOs serving as a member of the IMT was 23 percent in 2015 and remained 23 percent in 2016 (chart below).

Chart 51. CISO IMT Membership, 2014-2016

The percentage of CIOs who were members of the IMT has remained in the mid-fifty percent range since the early 2000s. In 2016, the percentage of CIOs who served on the IMT was 60 percent. The chart below depicts a comparison of CIO and CISO IMT membership and non-membership for 2016.
Given the small number of CISOs who reported to the CEO and who served on the IMT, it comes as no surprise the CISO did not have a great deal of formal interaction with either the CEO or IMT. As shown in the chart below, only seven percent of the CISOs had weekly interaction with the President. Another 10 percent reported monthly interaction with the institution president. The single largest percentage of CISOs, 49 percent, reported formal interaction with the President occurred once a year or less.

Only four percent of CISOs interacted daily with the IMT and another 13 percent indicated weekly interactions. The single largest percentage, 43 percent, interacted with the IMT a few times per year.

CIO and CISO interaction occurred much more frequently. Fifty-one percent of the CISOs interacted with CIOs weekly. Another 41 percent of CISOs interacted with the CIO daily.
CISO Preparation Activities

The people who have a CISO position as a career goal want to know what they should do to prepare for the position. The CISOs were asked what activities should be undertaken for an aspiring CISO. The most frequently selected response (at 90 percent) was *Mentored by a CISO*. The second most frequently selected answer was *Professional development* at 89 percent. Another 81 percent chose *On-the-job training* (chart below). In CHECS’ CIO research, the two most frequently selected methods to prepare for the CIO role were *Mentoring* and *On-the-job training*.

Chart 53. CISOs’ Formal Interaction with CEO, IMT, and CIO

- On average, I interact with the CIO on a formal basis (e.g., official meetings, work-related calls, etc.)
- On average, I interact with the other members of the institution management team (other VPs, Provost etc.) on a formal basis (e.g., official meetings, work-related calls, etc.)
- On average, I interact with the CEO on a formal basis (e.g., official meetings, work-related calls, etc.)
Chart 54. CISO Preparation Activities

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<td>Actively pursuing next degree</td>
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<tr>
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<tr>
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CIOs also provided their insight regarding the best ways to prepare for the CISO position. The CIO responses mirrored CISO responses, naming the same top four activities (chart below).

Chart 55. CIO View of CISO Preparation Activities

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<td>Mentored by a CISO or other executive</td>
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Security Model

One of the benefits that CISOs enjoy in their profession is a body of knowledge that gives them standards and guidelines. Some of these guidelines are contained in security models. These models are important to the CISO. The CISOs were asked which security model(s) they used. The two most widely used models were NIST and a combination of models with 60 and 54 percent of the responses, respectively.
The CISOs were also asked about the value of the security model(s) they were using. CISOs rated their security models from *Least valuable* to *Very valuable*. There were 60 percent of the CISOs who found their security model to be *Valuable* while none of the respondents indicated their model was *Least valuable* (chart below).

**Chart 57. Value of Security Model Used**

Information security is important to higher education institutions and their technology leaders (Grajek, 2016). As a result, it is important to have some understanding about the maturity of the information security programs protecting the institutions.

**Security Program Maturity**
There are several factors that might go into the information security posture of a higher education institution. One of them is the maturity of the security program. The CISOs were asked to rate their security program maturity. There were 20 percent of the CISOs who considered their security program to be *Mature* or a *Leader*. Another 29 percent indicated their security program was *Ad hoc* or *Under Development*. The single largest answer, 51 percent, was the program was *Improving* (chart below).

**Chart 58. Security Program Maturity – CISO**

The percentage of CISOs who viewed their program as mature or a leader increased by seven percent since 2015 (chart below).

**Chart 59. CISO Mature or Leader Security Programs**

The CIOs were also asked to provide their point of view about the maturity of their security program and their responses were similar to the CISOs’. Only 16 percent of the CIOs considered their security program *Mature* or a *Leader*. Thirty-eight percent of the CIOs indicated their program was *Ad hoc* or *Under Development*. The single largest answer was *Improving* at 45 percent (chart below).
In this research, there were a group of CIOs (39 percent) who not only served as the CIO but who were also the CISO. Among that group, only nine percent of CIOs considered their program to be *Mature* and none of them rated their program a *Leader*. There were 45 percent of the CIO/CISOs who viewed their program as *Ad hoc* or *Under Development*. Another 45 percent said their program was *Improving* (chart below). On the surface, these CIOs appear to be doing two very demanding and complex full-time jobs. Attempting to perform both functions may be too much for one person and, thus, the program maturity may suffer.

**Chart 61. CIO also serving as the CISO: Security Program Maturity**

Security Program Resources

The CISOs and CIOs were asked about their security program budget. This budget may play a part in the percentage of respondents who considered their security programs to be immature. Thirty-six percent of the CISOs indicated there was not a dedicated security budget.
Among CIOs, 55 percent indicated there was not a dedicated security budget (Chart below). Another 11 percent had a security program budget that was under $100,000.

As might be expected, over 70 percent of the CIO/CISOs said there was no security budget. This lack of resources may be one of the reasons why a significant percent of the programs were under development.
The percentage of CISOs without a security budget has declined since this question was first asked in 2014. The chart below depicts the percentage of CISOs who indicated they did not have a security budget from 2014 to 2016.

**Chart 65. CISO: No Security Program Budget, 2014-2016**

The chart below depicts a comparison of the security budget for the CISOs, CIOs, and CIO/CISOs. Over 50 percent of all three groups indicated there was $100,000 or less for a dedicated security budget. For the CIO/CISO this percentage was over 90 percent.
The survey respondents were also asked for the number of dedicated security program employees working in their institutions. The three charts below depict the answers for the CISO, CIO, and CIO/CISO. As in 2015, 94 percent of the CISOs had employees dedicated to their security programs. There were 19 percent of those CISOs who had one person assigned to the security program.

**Chart 66. CISO/CIO: Security Program Budget Comparison**

The chart shows the distribution of security program budgets among CISOs, CIOs, and CIO/CISOs. The data is categorized into different spending ranges and depicted with bar graphs.

**Chart 67. CISO: Dedicated Security Program Employee**

The pie chart illustrates the distribution of the number of dedicated security program employees among CISOs. The categories include None, One, Two, Three, Four, Five or more, and Other, with respective percentages indicated.
There were 38 percent of the CIOs who indicated they did not have any dedicated security employees. Another 26 percent of the CIOs said they had one employee in the security program.

**Chart 68. CIO: Dedicated Security Program Employee**

The chart below depicts the CIO respondents who did not have any dedicated security employees from 2014 to 2016. Despite the number of security incidents that have been reported, the percentage of CIOs without a security employee rose from 35 percent in 2014 to 38 percent in 2016.

**Chart 69. CIO: No Employees Devoted to Security, 2014-2016**
There were 75 percent of the CIOs who also served as the CISO who indicated they did not have any employees devoted to the security program. Another 15 percent indicated there was one person working on their security program.

**Chart 70. CIO serving as CISO: Dedicated Security Program Employee**

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**Disruptions and Breaches**

It could be argued that one of the primary reasons for an institution to have a CISO and to put resources into an information security department is to prevent disruptions and breaches. This information security resource dedication would increase the reliability and security for students and employees of an institution. The CISOs and CIOs were asked if their organizations had suffered a disruption or breach in the last three years. Twenty-nine percent of the CISOs indicated their organization had suffered a disruption. There were eleven percent of the CIOs who were also the CISO who indicated there had been a disruption. The results are depicted in the chart below.

The percentage of all three groups who suffered a data breach was higher than the disruption results. There were 31 percent of the CISOs and 26 percent of the CIOs who had suffered a breach in the past three years. Given the lack of resources and people devoted to information security, it is surprising only 20 percent of the CIOs who served as the CISO reported a breach.
Chart 71. CISO/CIO: Disruption in Critical IT Services in Past Three Years

![Bar chart showing the percentage of CISOs from 2014 to 2016 who indicated they had a disruption in the past three years. The results ranged between 25 and 31 percent.]

The chart below depicts the percentage of CISOs from 2014 to 2016 who indicated they had a disruption in the past three years. The results ranged between 25 and 31 percent.

Chart 72. Disruption in Past Three Years According to CISO, 2014-2016

![Line chart showing the percentage of CISOs who experienced a data breach in the past three years. The average cost of a breach in 2016 was reported as $4M ("2016 Ponemon Cost of Data Breach Study," 2016). The CISOs and CIOs were asked if they had experienced a data breach in the past three years. There were 31 percent of the CISOs who indicated they had experienced a data breach. Another 13 percent of the CISOs declined to answer (chart below).]
The CIO responses revealed similar results with 26 percent of the CIOs indicating a breach had occurred and nine percent declining to answer (chart below).

The 2014 to 2016 results for the breach question according to the CISOs are depicted in the chart below. The result declined from a high of 45 percent in 2014 to 31 percent in 2016. Perhaps, the information security programs are maturing.

The 2014 to 2016 results for the breach question according to the CISOs are depicted in the chart below. The result declined from a high of 45 percent in 2014 to 31 percent in 2016. Perhaps, the information security programs are maturing.
While the results of this research cannot prove the lack of resources in a security program produces a less than satisfactory result, there is undoubtedly a connection. The institution where the CIO is also the CISO, where there is no dedicated budget and no dedicated security program employees are at a disadvantage in what is a very dangerous technology world with high stakes.
CISO Role Importance and Effectiveness

Role importance and effectiveness

Information security is critical to the higher education institution. The people leading information security are as complex as the position itself. They come from a wide variety of roles within an IT department and are expected to be and do many things. They may be at disadvantage in that the people who hire and supervise the majority of CISOs have a different opinion about skills and education required to do the CISO job from the people doing the job every day. The CISOs and CIOs were asked a series of questions about the importance of CISO tasks and how effective the CISOs were in performing those tasks. The results were combined into six CISO roles which range from foundational roles to higher order roles. The CISO roles are depicted and defined in the table below.

Table 3. CISO Roles

<table>
<thead>
<tr>
<th>CISO ROLE</th>
<th>RESPONSIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession Advocate</td>
<td>Active in the professional and higher education community</td>
</tr>
<tr>
<td>Strategist</td>
<td>Develops programs and standards</td>
</tr>
<tr>
<td>Educator</td>
<td>Educates the institution on security policy and general security awareness</td>
</tr>
<tr>
<td>Traditional Security Operations</td>
<td>Framework implementation and incident response</td>
</tr>
<tr>
<td>Trusted Risk Advisor</td>
<td>Risk assessment and mitigation</td>
</tr>
</tbody>
</table>

To assess Role Effectiveness, CISOs and CIOs answered questions to rate each of the roles on a scale of 1 to 5 for Importance: 1 indicated no importance and 5 indicated critically important. Likewise, both groups rated the CISO functioning in each role for Effectiveness: 1 represented expectations not met and 5 represented outstanding. These ratings are defined in the table below.
Table 4. CISO Role Importance and Effectiveness

<table>
<thead>
<tr>
<th>IMPORTANCE</th>
<th>EFFECTIVENESS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 = No importance</td>
<td>1 = Expectations not met</td>
</tr>
<tr>
<td>2 = Least important</td>
<td>2 = Could be better</td>
</tr>
<tr>
<td>3 = Important</td>
<td>3 = Satisfactory</td>
</tr>
<tr>
<td>4 = Very important</td>
<td>4 = Excellent</td>
</tr>
<tr>
<td>5 = Critically important</td>
<td>5 = Outstanding</td>
</tr>
</tbody>
</table>

The aggregate CISO ratings of importance for the six roles are depicted in the table below. All roles were rated as Important on the scale except for Strategist, which was rated as Very important. According to the CISOs, the two most vital roles were Strategist and Architect, which are proactive and higher order roles. The third most important role was Traditional Security Operations, which is a reactive and foundational role. As CHECS also found in its CIO role-importance research, the Educator and Profession Advocate roles were two of the three Least important roles. The other least important role was Trusted Risk Advisor.

Table 5. CISO Role Importance According to CISO

<table>
<thead>
<tr>
<th>Role</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategist</td>
<td>4.23</td>
</tr>
<tr>
<td>Architect</td>
<td>3.95</td>
</tr>
<tr>
<td>Traditional Security Operations</td>
<td>3.73</td>
</tr>
<tr>
<td>Educator</td>
<td>3.66</td>
</tr>
<tr>
<td>Trusted Risk Advisor</td>
<td>3.63</td>
</tr>
<tr>
<td>Profession Advocate</td>
<td>3.55</td>
</tr>
</tbody>
</table>

Rating Effectiveness is an evaluation of the CISOs’ Role Effectiveness. The results according to the CISO are shown in the table below. On the 1-to-5 scale all the self-evaluation ratings for the roles were Satisfactory. CISOs considered themselves most effective in the role of Profession Advocate, which was the role they rated as least important. Profession Advocate is also arguably a role that is least important to an institution and its security. Traditional Security Operations, the third most important role was the second most effective.

Table 6. CISO: CISO Role Effectiveness

<table>
<thead>
<tr>
<th>Role</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profession Advocate</td>
<td>3.50</td>
</tr>
<tr>
<td>Traditional Security Operations</td>
<td>3.48</td>
</tr>
<tr>
<td>Architect</td>
<td>3.48</td>
</tr>
<tr>
<td>Strategist</td>
<td>3.40</td>
</tr>
<tr>
<td>Trusted Risk Advisor</td>
<td>3.26</td>
</tr>
<tr>
<td>Educator</td>
<td>3.23</td>
</tr>
</tbody>
</table>
The CIOs’ evaluation of the CISO *Role Importance* is depicted in the chart below. All of the roles were rated as *Important* on a scale of 1 to 5, except Strategist, which was rated as *Very Important*. This was also the only role the CISOs rated as *Very Important*. The CIOs agreed with the CISOs on the importance order for the first three CISO roles and the last role, Profession Effective. The most important role, *Strategist*, was followed by *Architect* and *Traditional Security Operations*. As with the CISOs, the CIOs ranked *Educator* and *Profession Advocate* as the least important roles.

**Table 7. CIO: CISO Role Importance**

<table>
<thead>
<tr>
<th>Role</th>
<th>Importance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategist</td>
<td>4.06</td>
</tr>
<tr>
<td>Architect</td>
<td>3.90</td>
</tr>
<tr>
<td>Traditional Security Operations</td>
<td>3.88</td>
</tr>
<tr>
<td>Trusted Risk Advisor</td>
<td>3.67</td>
</tr>
<tr>
<td>Educator</td>
<td>3.67</td>
</tr>
<tr>
<td>Profession Advocate</td>
<td>3.42</td>
</tr>
</tbody>
</table>

The table below depicts the CIOs’ evaluation of CISO effectiveness for the six roles. All of the roles were rated a 3 on the 1-to-5 scale. The three most important roles according to the CIO, *Strategist, Traditional Security Operations* and *Architect*, were roles they rated the CISOs as most effective. The other three roles, *Trusted Risk Advisor, Profession Advocate*, and *Educator* were fourth, fifth, and sixth. The CIOs rated all CISO roles lower than the CISO effectiveness ratings.

**Table 8. CIO: CISO Role Effectiveness**

<table>
<thead>
<tr>
<th>Role</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Traditional Security Operations</td>
<td>3.39</td>
</tr>
<tr>
<td>Architect</td>
<td>3.23</td>
</tr>
<tr>
<td>Strategist</td>
<td>3.16</td>
</tr>
<tr>
<td>Trusted Risk Advisor</td>
<td>3.07</td>
</tr>
<tr>
<td>Profession Advocate</td>
<td>3.09</td>
</tr>
<tr>
<td>Educator</td>
<td>3.08</td>
</tr>
</tbody>
</table>

The following illustration depicts a side-by-side comparison between CIOs and CISOs role importance ranking as well as the role effectiveness.
Chart 76. CISO Role Importance and Effectiveness Comparison
The table below depicts a number of the CISO questions and the results for 2014 through 2016.

**Table 9. Higher Education Chief Information Security Officer for 2014-2016**

<table>
<thead>
<tr>
<th>Question</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age - percentage older than 51 years old</td>
<td>52%</td>
<td>43%</td>
<td>48%</td>
</tr>
<tr>
<td>Female percentage</td>
<td>19%</td>
<td>15%</td>
<td>14%</td>
</tr>
<tr>
<td>Minority percentage</td>
<td>5%</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>Hispanic percentage</td>
<td>6%</td>
<td>5%</td>
<td>9%</td>
</tr>
<tr>
<td>Tenure in current position (3 years 10 months)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage with advanced degree</td>
<td>59%</td>
<td>58%</td>
<td>64%</td>
</tr>
<tr>
<td>Percentage with technology major</td>
<td>35%</td>
<td>39%</td>
<td>37%</td>
</tr>
<tr>
<td>Percentage retiring in 10 years</td>
<td>35%</td>
<td>35%</td>
<td>36%</td>
</tr>
<tr>
<td>Reporting to CEO</td>
<td>4%</td>
<td>7%</td>
<td>4%</td>
</tr>
<tr>
<td>Serving on IMT</td>
<td>18%</td>
<td>23%</td>
<td>23%</td>
</tr>
<tr>
<td>Disruption in past three years – CISO</td>
<td>25%</td>
<td>31%</td>
<td>29%</td>
</tr>
<tr>
<td>Breach in past three years – CISO</td>
<td>45%</td>
<td>47%</td>
<td>31%</td>
</tr>
<tr>
<td>No dedicated budget – CISO</td>
<td>40%</td>
<td>38%</td>
<td>36%</td>
</tr>
<tr>
<td></td>
<td>35%</td>
<td>36%</td>
<td>38%</td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>No employees devoted to security – CIO</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security Program Maturity (Mature and Leader) – CISO</td>
<td>14%</td>
<td>13%</td>
<td>20%</td>
</tr>
</tbody>
</table>
REFERENCES


About CHECS

CHECS was founded in 2009 by Dr. Wayne A. Brown to enable continued studies focusing on higher education CIOs’ attributes, education, experience and effectiveness. The research is unique from other CIO studies in that it is a two-part survey involving the CIO as well as other members of the institution management team. The annual study invites participation from the CIO (or senior technology person) at every two- and four-year higher education institution in the United States and other international institutions. Survey responses are analyzed in aggregate and statistical data is extracted and synthesized into an annual report. The CIO study has been conducted since 2003.

In 2009, CHECS launched a second study focusing on those individuals in the next organizational layer down from the CIO. This survey is administered to higher education technology leaders and CIOs are asked some of the same questions to create the Higher Education Technology Leadership Study: The Chief Information Officers of the Future.

CHECS also conducts a chief information security officer (CISO) study that began in 2014. Like the other two reports, the CISO research is based on multiple perspectives, gathered through one survey completed by higher education CISOs and a similar survey completed by CIOs.

CHECS is a nonprofit (501c3) organization dedicated to the education and development of the higher education chief information officer. The organization and studies are funded through report sales, subscriptions, and sponsor donations. In 2010, CHECS began funding an endowed scholarship to benefit higher education technology management doctoral students at Nova Southeastern University. CHECS funds a second endowed scholarship at University of Texas, Austin, to benefit undergraduate students seeking a higher education technology management degree. In 2014, CHECS began funding a third scholarship at Florida State University to benefit students in the Management Information Systems programs. The fourth CHECS scholarship is at Excelsior College in Albany, New York and it is a need-based scholarship for women and minorities.

CHECS’ reports published in prior years may be ordered online. Credit cards are securely processed through PayPal. You do not need to have a PayPal account to use its payment processing system. Once an order is placed, a password-protected PDF will be e-mailed to the e-mail address you provide. Site licenses are also available. The license authorizes you to share the PDF with your institution. In addition, your institution will be recognized as a CHECS sponsor.

In 2016, CHECS launched a subscription, which gives an entire institution access to all CHECS research, presentations, webinars, and other services. For more information, visit CHECS online (www.CHECS.org).

CHECS gratefully acknowledges Dr. Detlev H. Smaltz. CHECS’ CIO survey was based on one created by Dr. Smaltz; the survey was modified and used with his permission.
About Wayne Brown

Wayne A. Brown, Ph.D., is the Chief Executive Officer and Founder of CHECS. He has been a chief information officer since the mid-1990s and has worked in higher education at colleges in San Francisco, Kansas, and New York since 2000. Prior to his academic career, he was in the U.S. Air Force for more than 20 years, serving in the Medical Service Corps, Education and Training, and Security Forces.

Dr. Brown began researching the higher education chief information officer roles and effectiveness as a doctoral dissertation and continued the surveys almost every year since 2003. Dr. Brown’s work has been widely published in higher education and technology publications, such as Chronicle for Higher Education, Information Week, CIO, Inside Higher Ed, Public CIO, EDUCAUSE Quarterly, League of Innovation in the Community College, Gartner, EDUCAUSE Review, CIO, and Campus Technology, and he has presented research findings at technology conferences throughout the United States.