

*A Higher Education TechQual+ Study*

**IT Services Survey 2014**  
*for University of York*



**Higher Education TechQual+ Project**  
Assessing IT Service Outcomes for Technology Organizations in Higher Education  
<http://www.techqual.org>

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## ***From the Higher Education TechQual+ Principal Investigator***

This report is the result of a survey of technology service outcomes conducted at University of York. The survey instrument has been developed through a collaborative effort between multiple institutions of higher education, a project known as the Higher Education TechQual+ Project. The goal of this project is to create a standardized survey instrument that assesses IT service outcomes in higher education, in a way that provides for benchmarks and comparisons between institutions. The results contained within this report are based on this survey. I hope that the reader finds the results enlightening and helpful in planning, developing, and managing technology services at University of York.

The Higher Education TechQual+ Project is modeled on the LibQual+ project developed by the Association of Research Libraries (ARL) in conjunction with the Texas A&M University Libraries. I am grateful to the pioneering work accomplished by the LibQual+ research team and recognize that their work has truly transformed libraries by creating a culture of assessment within the library practice. It is my hope that the the Higher Education TechQual+ Project will have a similar transformative effect for technology organizations in higher education.

Dr. Timothy M. Chester  
Principal Investigator  
Higher Education TechQual+ Project

## ***About the Higher Education TechQual+ Project***

The Higher Education TechQual+ Survey had its origins in a pilot project conducted at Texas A&M University at Qatar in the Spring of 2006. Under the leadership of Dr. Timothy M. Chester, the management team of Information Technology Services (ITS) worked to build a survey instrument to gather feedback from the TAMUQ community of end users in a way that would provide objective criteria for continuous improvement and strategic planning.

They modeled their work on the existing SERVQUAL and IS SERVQUAL approaches, but paid particular attention to pioneering work by the leadership of Texas A&M University Libraries and their partners from the Association of Research Libraries who had previously developed the LibQual+ survey instrument. The LibQual+ conceptual approach was also based on SERVQUAL, a tool used in the private sector to assess service quality.

Following the success of the pilot project, a research project was commissioned by Dr. Timothy Chester. The goal of the project is to develop a scientifically reliable and valid instrument that can be adopted by all institutions of higher education to assess IT service performance. The TechQual+ survey is delivered through a web portal (<http://www.techqual.org>), thus shielding the participating institutions from the rigors and complexities of survey research.

The Higher Education TechQual+ Core Instrument is a web-based survey that requires approximately 20 minutes to complete. It asks respondents to provide evaluations regarding minimum expectation levels, desired service levels, and perceived service levels for up to 13 IT service outcomes expected by faculty, students, and staff.

TechQual+ was developed through multiple rounds of qualitative and quantitative data collection from participating institutions. Using this data, the TechQual+ instrument is continually refined with the goal of insuring that the resulting instrument is both valid and reliable. The goal of the project is to understand what end users feel that "technology outcomes" really are and then to develop an instrument that allows for the systematic exploration of these outcomes in a way that allows for continuous improvement and strategic planning.

The TechQual+ principal investigator is grateful for the exceptional work by the staff of the Association of Research Libraries as they developed and implemented the LibQual+ process. The success of the TechQual+ project will be due in large part to the pioneering research that produced the LibQual+ survey.

## ***Project Coordinators for University of York***

The Higher Education TechQual+ Project is a cooperative project between institutions of higher education. Each participating institution is represented by project coordinators who direct and conduct surveys for their institution.

This survey was conducted by the project coordinators for University of York. The Higher Education TechQual+ project coordinators for this institution are:

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## Higher Education TechQual+ Data Analysis Guide

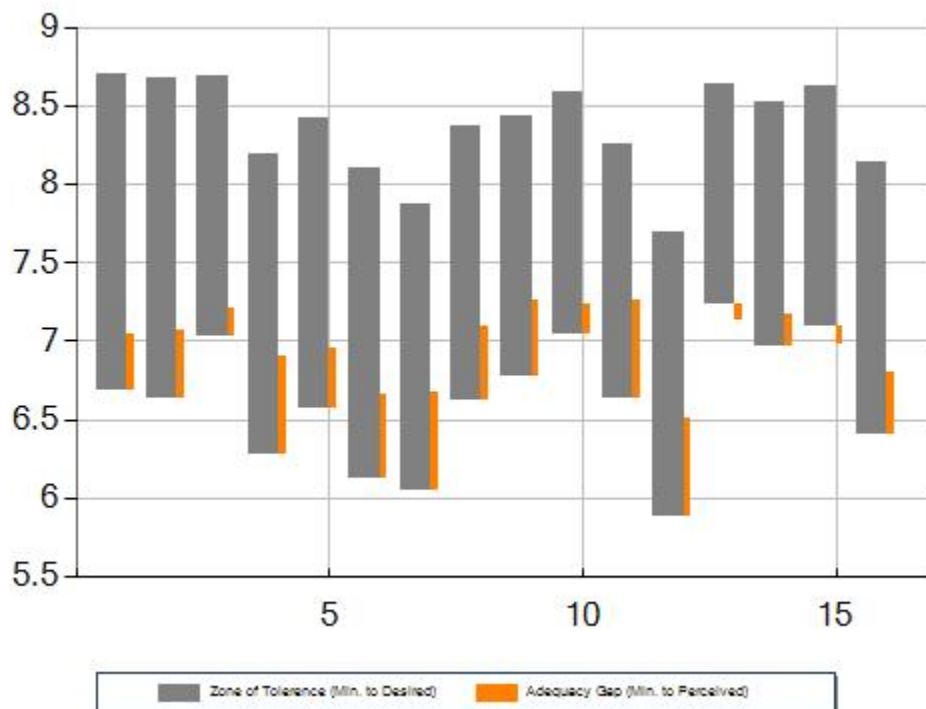
The data from this survey is presented in multiple ways:

**Statistics:** For each item in the survey, both the means and standard deviations are reported, along with the number of observations (N). A p value (P) is calculated for each survey item, reflecting a test of the null hypothesis  $H_0: Adequacy\ Gap\ Score = 0$ . Additionally, two other important measures are included that which indicate whether respondents have a positive or negative perception of IT service quality.

**Service Adequacy Gap Score:** This score is computed by subtracting the minimum level of service score from the perceived level of service score. A positive number indicates the extent that perceived service levels exceeds end users minimum expectations, a negative number indicates a gap between the perceived performance and minimum expectations.

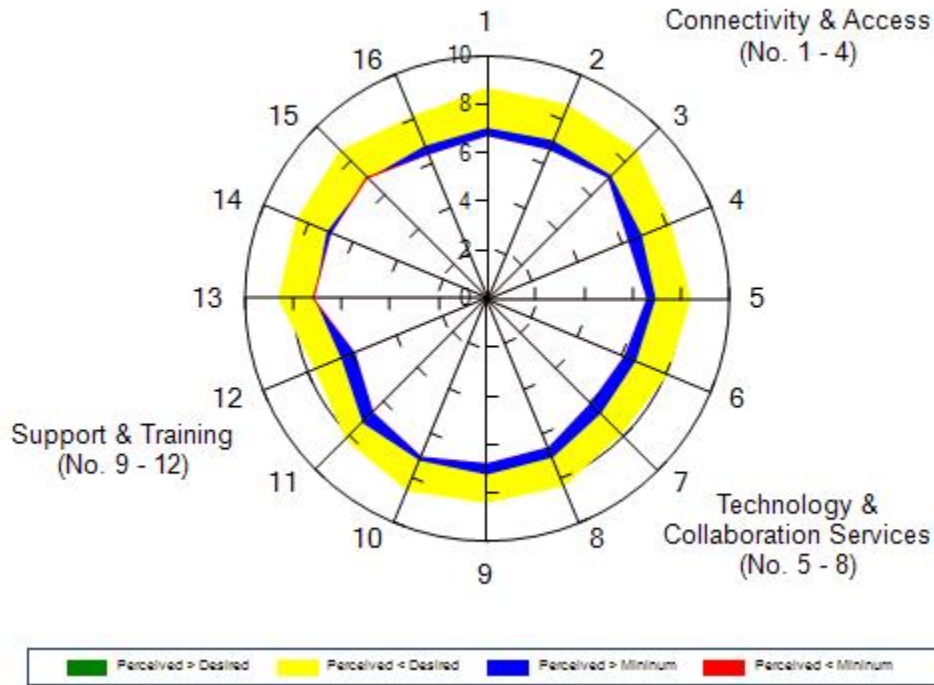
**Service Superiority Gap Score:** This score indicates the degree to which end users desired service levels are being met. This score is computed by subtracting the desired level of service score from the perceived level of service score. A positive number indicates the extent that perceived service exceeds end users desired expectations, a negative number indicates a gap between perceived service performance and end users desired expectations.

### Zones of Tolerance:



For each type of service, expectations are measured as a range as opposed to a single, scaled point. The range between end users minimum expectations and desired expectations constitutes what is known as the "zone of tolerance". A second range, the service adequacy gap range (minimum to perceived) is also computed and displayed against the zone of tolerance for each respective service dimension. This chart graphically displays the end users range of expectations across all service dimensions and your organizations performance against those expectations.

## Radar Charts:



For each dimension of service, the minimum, desired, and perceived quality of service is plotted on a radar chart. This chart is helpful in viewing how each data point is related to the overall service dimension as well as to other service dimensions. The one to nine (1-9) scale is plotted along the y axis of the chart, and each 'spoke' represents one dimension of service. The colors green, yellow, blue, and red are used to express the perceived service levels against end users range of expectations (or, zones of tolerance).

**Incomplete Surveys:** The data contained in this report includes cases where the respondent completed an individual item but did not complete the survey in its entirety.

**Suggestions:** When the perceived rating is below the minimum level of service, the end user is provided the opportunity to make suggestions on how the quality of this service can be improved. While these responses remain subjective, they can be useful in planning strategies to improve service quality over the long term.

## **About this Higher Education TechQual+ Survey**

This survey consisted of multiple IT service outcomes grouped together into distinct core commitments expected by faculty, students, and staff. These core commitments for this survey were designed to assess these categories of IT service outcomes:

### **Connectivity and Access**

*Tell us about the quality of the Internet service on campus.*

### **Technology and Collaboration Services**

*Tell us about the quality of Web sites, online services, and technologies for collaboration.*

### **Support and Training**

*Tell us about your experiences when obtaining assistance with technology on campus.*

### **Other Important Information Technology Services**

*Assesses other important IT service outcomes on campus*

Each of these core commitments includes separate questions that refer specifically to IT service outcomes on the University of York campus corresponding to each core commitment. For each question, respondents are asked to rate the service dimension in three ways based on a rating scale (1 is lowest, 9 is highest). Respondents are requested to indicate their minimum service level expectation, desired service level expectation, and perceived service performance for each question:

Minimum Service Level Expectation - the number that represents the **minimum level of service** that the respondent finds acceptable. If a respondent has minimal expectations for the statement, his or her rating is typically closer to the lower end of the rating scale. If the respondent has higher expectations, the rating is typically closer to the higher end of the rating scale.

Desired Service Level Expectation - the number that represents the level of service that the **respondent personally wants**. The respondent selects a rating that represents the level of services he or she desires.

Perceived Service Performance - the number that represents the level of service that the respondent **believes is currently provided**. This rating is typically considered in light of the minimum and desired ratings that were previously selected. Generally speaking, this rating typically falls between the minimum and desired service level ratings. However, if the respondent feels that the actual performance is below the minimum service levels, the rating is equal to or below their minimum service level rating. If the respondent feels that the actual performance exceeds the desired expectations, the rating is typically equal to or greater than the desired service level rating.

## **Core Commitments and IT Service Outcomes for This Survey**

Below is a list of the Higher Education TechQual+ core commitments and IT service outcomes for this survey.

### **Connectivity and Access**

*When it comes to...*

Having a campus Internet service that is reliable and that operates consistently across campus.

Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.

Having wireless Internet coverage in all of the places that are important to me on campus.



Support for accessing the campus Internet service using my tablet or other mobile device.

### **Technology and Collaboration Services**

*When it comes to...*

Having campus Web sites and online services that are easy to use.

Accessing important campus Web sites and online services from my tablet or other mobile device.

Having campus technology services available that improve and enhance my collaboration with others.

Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.

### **Support and Training**

*When it comes to...*

Technology support staff who are consistently courteous and thoughtful.

Technology support staff who are knowledgeable and can help me resolve problems with campus technology services.

Getting timely resolution to problems that I am experiencing with campus technology services.

Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.

Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.

### **Other Important Information Technology Services**

*When it comes to...*

Having a calendar service that is easy to use and helpful to me *Self-reported faculty, students, staff, not declared only.*

Having an email service that meets my requirements as a member of the University *Self-reported faculty, students, staff, not declared only.*

Having IT classrooms and study areas in the areas that are important to me *Self-reported faculty, students, staff, not declared only.*

Having printing and scanning facilities that are reliable, available and perform in an acceptable manner *Self-reported faculty, students, staff, not declared only.*

Support staff who can assist me with issues relating to personal devices and non-Windows operating system (eg Mac OS X and Linux) *Self-reported faculty, students, staff, not declared only.*

Having support for the IT needs of my research *Self-reported faculty, students, staff, not declared only.*

Having tools to support the administration of teaching and learning (eg assignment marking, submission of assignments, timetabling) *Self-reported faculty, students, staff, not declared only.*

### **Additional Questions**

Additionally, the project coordinators for University of York included these additional questions with this survey, for which respondents were asked to provide responses.

How do you rate the overall quality of IT services at the University? (Multiple Choice Question)  
*Self-reported faculty, students, staff, not declared only.*

- a) Very good
- b) Good
- c) Adequate
- d) Poor
- e) Very poor

Any other comments (Open-ended Question) *Self-reported faculty, students, staff, not declared only.*

How easy was it for you to complete this survey? (1 = very difficult, 9 = very easy)

- a)
- b)

How confident are you that the answers you provided are meaningful? (1 = not at all confident, 9 = very confident)

- a)
- b)

## Population Analysis

The total population (N) for this survey included the faculty, staff, and students (or portions thereof) of University of York. The Higher Education TechQual+ project protocols state that respondents (n) should represent a random sampling of the total population (N). The responsibility for assuring a sufficiently large random sample resides with the project coordinators at University of York. Deviations from the Higher Education TechQual+ project protocols may negatively impact the statistical significance of the findings of this study.

The analysis below is based upon self-reported information (page 1 of the survey) from respondents obtained via the "direct link" method of data collection. Values for # attempted, # complete, and completion rate (# complete / # attempted) are available.

### Total Population / Respondents

| Population Size (N) | Respondents (n) | Respondents (n) % | # Attempted | # Complete | Completion Rate |
|---------------------|-----------------|-------------------|-------------|------------|-----------------|
| 0                   | 0               | 0%                | 3971        | 2275       | 57%             |

### Attribute: University Role (self-reported)

|                | Pop (N) | Resp (n) | Resp (n) % | # Attempted | # Complete | Comp. Rate |
|----------------|---------|----------|------------|-------------|------------|------------|
| Not Declared   | 0       | 0        | 0%         | 792         | 34         | 4%         |
| Faculty        | 0       | 0        | 0%         | 175         | 135        | 77%        |
| Staff          | 0       | 0        | 0%         | 1136        | 799        | 70%        |
| Student        | 0       | 0        | 0%         | 1868        | 1307       | 69%        |
| <b>Totals:</b> | 0       | 0        | 0%         | 3971        | 2275       | 57%        |

Legend: Pop (N) = Total Population; Resp (n) = Sample Size; Resp (n) % = n/N x 100; # Attempted = # Attempted Surveys; # Complete = # Complete Surveys; Comp. Rate = # Complete / # Attempted

### Attribute: Sex (self-reported)

|                | Pop (N) | Resp (n) | Resp (n) % | # Attempted | # Complete | Comp. Rate |
|----------------|---------|----------|------------|-------------|------------|------------|
| Not Declared   | 0       | 0        | 0%         | 805         | 44         | 5%         |
| Female         | 0       | 0        | 0%         | 1763        | 1197       | 67%        |
| Male           | 0       | 0        | 0%         | 1403        | 1034       | 73%        |
| <b>Totals:</b> | 0       | 0        | 0%         | 3971        | 2275       | 57%        |

Legend: Pop (N) = Total Population; Resp (n) = Sample Size; Resp (n) % = n/N x 100; # Attempted = # Attempted Surveys; # Complete = # Complete Surveys; Comp. Rate = # Complete / # Attempted

### Attribute: Age Group (self-reported)

|                | Pop (N) | Resp (n) | Resp (n) % | # Attempted | # Complete | Comp. Rate |
|----------------|---------|----------|------------|-------------|------------|------------|
| Not Declared   | 0       | 0        | 0%         | 1079        | 199        | 18%        |
| 0-24           | 0       | 0        | 0%         | 1294        | 885        | 68%        |
| 25-34          | 0       | 0        | 0%         | 710         | 555        | 78%        |
| 35-44          | 0       | 0        | 0%         | 417         | 304        | 72%        |
| 45-54          | 0       | 0        | 0%         | 279         | 206        | 73%        |
| 55 & ABOVE     | 0       | 0        | 0%         | 192         | 126        | 65%        |
| <b>Totals:</b> | 0       | 0        | 0%         | 3971        | 2275       | 57%        |

Legend: Pop (N) = Total Population; Resp (n) = Sample Size; Resp (n) % = n/N x 100; # Attempted = # Attempted Surveys; # Complete = # Complete Surveys; Comp. Rate = # Complete / # Attempted

## Key Findings for All Respondents

To ascertain statistical significance a two-tailed p-value (P) is calculated for each survey item to test the null hypothesis  $H_0$ : Adequacy Gap Score = 0. A positive adequacy gap score indicates service performance exceeding respondent's minimum expectations, a negative score indicates service performance below respondent's minimum expectations. Based on this analysis the statistically significant findings (0.05 confidence level) from this survey are as follows:

### Positive Perceptions (Adequacy Gap Score > 0)

Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads.

*Adequacy Gap Score = 0.19; N = 2561; P = 0.00*

Support for accessing the campus Internet service using my tablet or other mobile device.

*Adequacy Gap Score = 0.25; N = 2313; P = 0.00*

Having campus Web sites and online services that are easy to use.

*Adequacy Gap Score = 0.23; N = 2403; P = 0.00*

Accessing important campus Web sites and online services from my tablet or other mobile device.

*Adequacy Gap Score = 0.30; N = 2099; P = 0.00*

Having campus technology services available that improve and enhance my collaboration with others.

*Adequacy Gap Score = 0.51; N = 2177; P = 0.00*

Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information.

*Adequacy Gap Score = 0.38; N = 2144; P = 0.00*

Technology support staff who are consistently courteous and thoughtful.

*Adequacy Gap Score = 0.65; N = 2099; P = 0.00*

Technology support staff who are knowledgeable and can help me resolve problems with campus technology services.

*Adequacy Gap Score = 0.35; N = 2040; P = 0.00*

Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.

*Adequacy Gap Score = 0.49; N = 2093; P = 0.00*

Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services.

*Adequacy Gap Score = 0.51; N = 2027; P = 0.00*

Having a calendar service that is easy to use and helpful to me

*Adequacy Gap Score = 0.50; N = 2105; P = 0.00*

Having an email service that meets my requirements as a member of the University

### Negative Perceptions (Adequacy Gap Score < 0)

Having wireless Internet coverage in all of the places that are important to me on campus.

*Adequacy Gap Score = -0.35; N = 2459; P = 0.00*

Having printing and scanning facilities that are reliable, available and perform in an acceptable manner

*Adequacy Gap Score = -0.37; N = 2154; P = 0.00*

*Adequacy Gap Score = 0.27; N = 2252; P = 0.00*

Having IT classrooms and study areas in the areas that are important to me

*Adequacy Gap Score = 0.71; N = 1682; P = 0.00*

Support staff who can assist me with issues relating to personal devices and non-Windows operating system (eg Mac OS X and Linux)

*Adequacy Gap Score = 0.37; N = 1564; P = 0.00*

Having support for the IT needs of my research

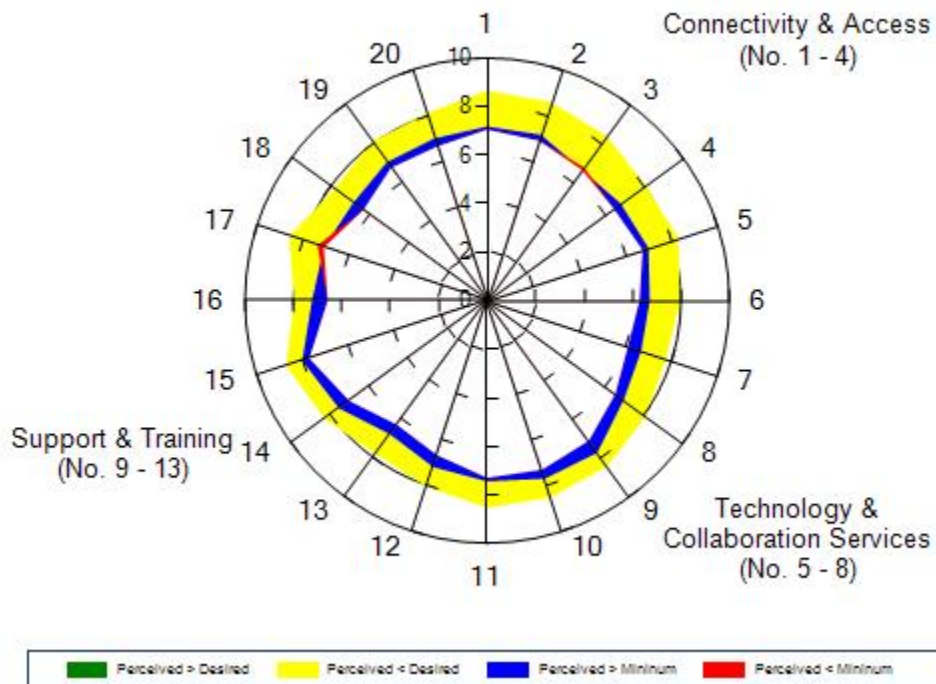
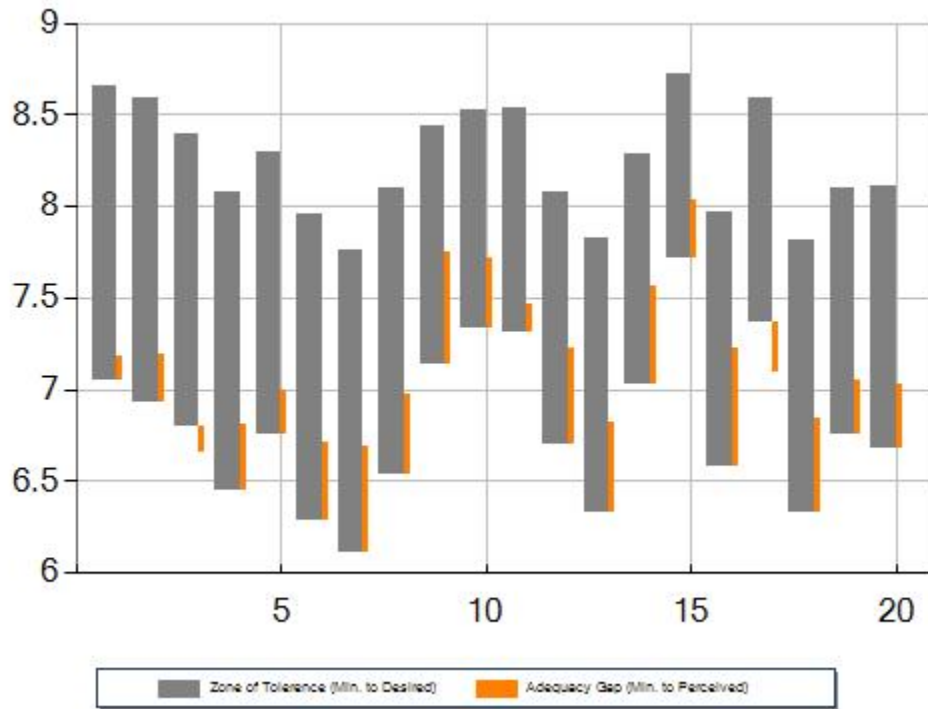
*Adequacy Gap Score = 0.17; N = 1371; P = 0.00*

Having tools to support the administration of teaching and learning (eg assignment marking, submission of assignments, timetabling)

*Adequacy Gap Score = 0.15; N = 1498; P = 0.00*

## Data Charts for All Respondents

Below are the charts for this view of the survey data.



## Data Tables for All Respondents

For each IT service outcome the statistical mean, standard deviation, N (number of observations), and P are presented. P represents a two-tailed p-value for a null hypothesis  $H_0$ : Adequacy Gap Score = 0. Rows shaded yellow may indicate potential problem areas, rows shaded red indicate a negative service adequacy gap score.

### Connectivity and Access

Tell us about the quality of the Internet service on campus.

| # | When it comes to...   |      | Min  | Des  | Per  | Adeq  | Supr  | N    | P    |
|---|---|------|------|------|------|-------|-------|------|------|
| 1 | Having a campus Internet service that is reliable and that operates consistently across campus.                 | Mean | 7.03 | 8.65 | 7.06 | 0.02  | -1.60 | 2576 | 0.51 |
|   |   | Dev  | 1.51 | 0.72 | 1.49 | 1.75  | 1.48  |      |      |
| 2 | Having a campus Internet service that is fast and that provides speedy access to Web sites and rapid downloads. | Mean | 6.90 | 8.58 | 7.09 | 0.19  | -1.49 | 2561 | 0.00 |
|   |   | Dev  | 1.52 | 0.76 | 1.49 | 1.78  | 1.51  |      |      |
| 3 | Having wireless Internet coverage in all of the places that are important to me on campus.                      | Mean | 6.83 | 8.39 | 6.48 | -0.35 | -1.91 | 2459 | 0.00 |
|   |   | Dev  | 1.70 | 1.07 | 1.77 | 2.25  | 1.93  |      |      |
| 4 | Support for accessing the campus Internet service using my tablet or other mobile device.                       | Mean | 6.42 | 8.05 | 6.68 | 0.25  | -1.38 | 2313 | 0.00 |
|   |   | Dev  | 1.84 | 1.31 | 1.80 | 2.19  | 1.95  |      |      |

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); N = Number of Observations; P = P value for null hypothesis  $H_0$ : Adequacy Gap Score = 0; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

### Technology and Collaboration Services

Tell us about the quality of Web sites, online services, and technologies for collaboration.

| # | When it comes to...   |      | Min  | Des  | Per  | Adeq | Supr  | N    | P    |
|---|---|------|------|------|------|------|-------|------|------|
| 5 | Having campus Web sites and online services that are easy to use.   | Mean | 6.70 | 8.28 | 6.93 | 0.23 | -1.35 | 2403 | 0.00 |
|   |   | Dev  | 1.54 | 0.99 | 1.36 | 1.76 | 1.48  |      |      |
| 6 | Accessing important campus Web sites and online services from my tablet or other mobile device.                       | Mean | 6.30 | 7.95 | 6.60 | 0.30 | -1.35 | 2099 | 0.00 |
|   |   | Dev  | 1.78 | 1.40 | 1.62 | 1.95 | 1.77  |      |      |
| 7 | Having campus technology services available that improve and enhance my collaboration with others.                    | Mean | 6.10 | 7.76 | 6.61 | 0.51 | -1.15 | 2177 | 0.00 |
|   |   | Dev  | 1.75 | 1.35 | 1.51 | 1.80 | 1.55  |      |      |
| 8 | Having technology within classrooms or other meeting areas that enhances the presentation and sharing of information. | Mean | 6.52 | 8.08 | 6.91 | 0.38 | -1.17 | 2144 | 0.00 |
|   |   | Dev  | 1.72 | 1.24 | 1.45 | 1.86 | 1.56  |      |      |

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); N = Number of Observations; P = P value for null hypothesis  $H_0$ : Adequacy Gap Score = 0; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

## Support and Training

Tell us about your experiences when obtaining assistance with technology on campus.

| #  | When it comes to...  |      | Min  | Des  | Per  | Adeq | Supr  | N    | P    |
|----|--|------|------|------|------|------|-------|------|------|
| 9  | Technology support staff who are consistently courteous and thoughtful.  | Mean | 7.03 | 8.40 | 7.68 | 0.65 | -0.72 | 2099 | 0.00 |
|    |  | Dev  | 1.53 | 0.95 | 1.29 | 1.60 | 1.26  |      |      |
| 10 | Technology support staff who are knowledgeable and can help me resolve problems with campus technology services.                               | Mean | 7.28 | 8.53 | 7.62 | 0.35 | -0.90 | 2040 | 0.00 |
|    |  | Dev  | 1.46 | 0.87 | 1.32 | 1.58 | 1.29  |      |      |
| 11 | Getting timely resolution to problems that I am experiencing with campus technology services.  | Mean | 7.28 | 8.53 | 7.33 | 0.04 | -1.21 | 2052 | 0.27 |
|    |  | Dev  | 1.40 | 0.82 | 1.48 | 1.73 | 1.49  |      |      |
| 12 | Receiving timely communications regarding campus technology services, explained in a relevant and easy-to-understand form.                     | Mean | 6.65 | 8.06 | 7.14 | 0.49 | -0.92 | 2093 | 0.00 |
|    |  | Dev  | 1.72 | 1.23 | 1.50 | 1.77 | 1.50  |      |      |
| 13 | Getting access to training or other self-help information that can enable me to become more effective in my use of campus technology services. | Mean | 6.25 | 7.80 | 6.77 | 0.51 | -1.03 | 2027 | 0.00 |
|    |  | Dev  | 1.89 | 1.43 | 1.57 | 1.91 | 1.67  |      |      |

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); N = Number of Observations; P = P value for null hypothesis H<sub>0</sub>: Adequacy Gap Score = 0; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas

## Other Important Information Technology Services

Assesses other important IT service outcomes on campus

| #  | When it comes to...  |      | Min  | Des  | Per  | Adeq  | Supr  | N    | P    |
|----|--|------|------|------|------|-------|-------|------|------|
| 14 | Having a calendar service that is easy to use and helpful to me<br><i>Self-reported faculty, students, staff, not declared only.</i>   | Mean | 6.95 | 8.25 | 7.45 | 0.50  | -0.79 | 2105 | 0.00 |
|    |  | Dev  | 1.88 | 1.31 | 1.59 | 1.90  | 1.60  |      |      |
| 15 | Having an email service that meets my requirements as a member of the University<br><i>Self-reported faculty, students, staff, not declared only.</i>  | Mean | 7.66 | 8.70 | 7.92 | 0.27  | -0.77 | 2252 | 0.00 |
|    |  | Dev  | 1.40 | 0.69 | 1.33 | 1.68  | 1.32  |      |      |
| 16 | Having IT classrooms and study areas in the areas that are important to me<br><i>Self-reported faculty, students, staff, not declared only.</i>  | Mean | 6.45 | 7.88 | 7.16 | 0.71  | -0.72 | 1682 | 0.00 |
|    |  | Dev  | 1.96 | 1.54 | 1.48 | 2.06  | 1.75  |      |      |
| 17 | Having printing and scanning facilities that are reliable, available and perform in an acceptable manner<br><i>Self-reported faculty, students, staff, not declared only.</i>                            | Mean | 7.31 | 8.55 | 6.94 | -0.37 | -1.61 | 2154 | 0.00 |
|    |  | Dev  | 1.56 | 0.96 | 1.67 | 2.14  | 1.81  |      |      |
| 18 | Support staff who can assist me with issues relating to personal devices and non-Windows operating system (eg Mac OS X and Linux)<br><i>Self-reported faculty, students, staff, not declared only.</i>   | Mean | 6.31 | 7.80 | 6.68 | 0.37  | -1.12 | 1564 | 0.00 |
|    |  | Dev  | 1.94 | 1.56 | 1.74 | 2.14  | 1.88  |      |      |
| 19 | Having support for the IT needs of my research<br><i>Self-reported faculty, students, staff, not declared only.</i>  | Mean | 6.75 | 8.10 | 6.92 | 0.17  | -1.18 | 1371 | 0.00 |
|    |  | Dev  | 1.87 | 1.39 | 1.63 | 1.93  | 1.59  |      |      |
| 20 | Having tools to support the administration of teaching and learning (eg assignment marking, submission of assignments, timetabling)<br><i>Self-reported faculty, students, staff, not declared only.</i> | Mean | 6.70 | 8.10 | 6.85 | 0.15  | -1.25 | 1498 | 0.00 |
|    |  | Dev  | 1.77 | 1.35 | 1.65 | 1.99  | 1.69  |      |      |

Legend: Min = Minimum Level of Service; Des = Desired Level of Service; Per = Perceived Service Quality; Adeq = Adequacy Gap Score (perceived - minimum); Supr = Superiority Gap Score (perceived - desired); N = Number of Observations; P = P value for null hypothesis H<sub>0</sub>: Adequacy Gap Score = 0; Mean = Statistical Mean; Dev = Standard Deviation; Red Color = Perceived < Minimum; Green Color = Perceived > Desired; Yellow Color = Potential Problem Areas