

Addendum U: 2020-2021 Technology Agility and Competency Task Force

BACKGROUND¹

The new 2020 AACSB Standards include a focus on technology agility and competency. Schools are expected to develop policies and practices that support, demonstrate, and assess technical skill and knowledge to ensure currency. While documentation for compliance is largely driven by school mission and associated outcomes, the relevant standards offer guidance:

Standard 2 – Physical, Virtual, and Financial Resources

“Technology is expected to be infused through the curriculum and vital to the production of scholarship and thought leadership. Here the peer review team will be looking to determine whether the school has current computing technology—both hardware and software—for faculty and staff sufficient to achieve the school’s mission and strategic plan. For example, do faculty have access to the databases they need or other sources of data to conduct research? Is the technology infrastructure current to support the desired teaching quality? In cases where the school offers digital learning opportunities, are the instructional faculty adequately trained and supported on technologies needed for online learning?” (p. 6-7)

Standard 3 – Faculty and Professional Staff Resources

“There is an expectation that the school plans for and provides resources for assisting faculty in maintaining currency with current and emerging technology. This is especially important in areas in which technology is rapidly changing.” (p. 17)

Standard 4 – Learner Success

“There are definitive core competencies that a graduate of a business school with either a generalized or specialized degree should be expected to have. Learners have the expectation and right to access curricula that is current and relevant. Curricula should also be innovative, impactful in its education of graduates, and promote engagement in multiple contexts. Because technology is so impactful in business, Standard 4 specifically addresses the need for learners to be agile with current technologies and possess technology agility. Curricula should be managed to ensure appropriate inclusion of technology.” (p. 23)

Table 4-1 Current or Emerging Technologies Employed (For the Most Recently Completed Normal Academic Year by Degree Program)

“Table 4-1 is designed to inventory current and emerging technologies in each degree program. Completion of the table will allow both the school and the peer review team to easily assess the school’s ability to ensure that learners are acquiring technology skills and technology agility in each program. This table should not include non-technical, ordinary and usual software programs such as word processing or presentation software. Examples of software that might be included are Excel, Tableau, Python, SQL, R, Access, etc. The peer review team will examine the table to see if Best Practices are in place in terms of technology used. This is a judgment call, based on the experience of the team and participants. For example, the team would expect to see, at a minimum, software such as Excel and Tableau or another analytic program in use in the accounting degree program. The use of technology in degree programs is but one example of curricular

¹ 2020 Guiding Principles and Standards - <https://www.aacsb.edu/-/media/aacsb/docs/accreditation/business/standards-and-tables/2020%20business%20accreditation%20standards.ashx?la=en&hash=E4B7D8348A6860B3AA9804567F02C68960281DA2>

currency. However, the lack of use of relevant technologies in degree programs can provide an important signal that the curriculum is or is not up to date and relevant.” (p. 25)

Table 4-1 Components

Degree Programs	Current or Emerging Technology Employed
BBA Marketing	
BBA Accounting	
BBA Management	
BBA Management Information Systems	
WebMBA	
Master in Management Information Systems	
Master in Accounting	
Master in Logistics & Supply Chain Management	

CHARGE

In preparation for drafting our Continuous Improvement Report (CIR), the Task Force shall provide the following in narrative format (along with any relevant data). For the review period starting July 1, 2017, the Task Force shall:

1. Describe and analyze the relevant state of physical technology capacity in the CoB;
2. Assess the deployment and effectiveness of technology resources available to faculty and staff; examine the degree to which faculty/staff maintain currency in technology skills and knowledge;
3. Assess learner technology competency and how/where learners are provided access to acquiring technical skills and knowledge in (and/or outside of) the curriculum (complete Table 4-1);
4. Recommendations on how best the CoB may further enhance and assess faculty, staff, and learner access and acquisition of technology skill and knowledge.

Composition

1. Tanya Goette (Chair)
2. Lynn Hanson (Dean’s Office)
3. Juan Ling (Assessment/AOL Coordinator)
4. Isarin Durongkadej (ECON-FIN)
5. Sina Amiri (MML)
6. Paige Rutner (IS-CS)
7. Sandria Stephenson (ACCT)

TIMELINE

- Call for members – November 17-December 1, 2020
- Finalize task force composition – December 4, 2020
- Task force work/meetings – after January 4-March 15, 2021
- Report to the Dean – March 30, 2021 (Task force meeting with Dean April 2, 2021)

Technology Task Force Report

Technology Task Force Members: Sina Amiri, Isarin Durongkadej, Tanya Goette, Lynn Hanson, Juan Ling, Paige Rutner, Sandria Stephenson

Task Force Charge:

In preparation for drafting our Continuous Improvement Report (CIR), the Task Force shall provide the following in narrative format (along with any relevant data). For the review period starting July 1, 2016, the Task Force shall:

1. Describe and analyze the relevant state of physical technology capacity in the CoB
2. Assess the deployment and effectiveness of technology resources available to faculty and staff; examine the degree to which faculty/staff maintain currency in technology skills and knowledge
3. Assess learner technology competency and how/where learners are provided access to acquiring technical skills and knowledge in (and/or outside of) the curriculum (complete Table 4-1)
4. Recommendations on how best the CoB may further enhance and assess faculty, staff, and learner access and acquisition of technology skill and knowledge

Technology Availability

Physical technology within the CoB is maintained by the Office of Information Technology within the university. When a new faculty member is hired, the faculty member either receives a new computer (desk/laptop, PC/Mac) of his/her choice, or he/she inherits the system from the former faculty member. The university refreshes computers every five years. This time cycle seems too long, and a shorter cycle would be better. If a faculty member wants upgraded or additional technology resources, faculty development funding may be available to purchase this.

Basic software is purchased by the university. If specialized software is needed, it must be requested. Generally, specialized software can be purchased with faculty development money if only a single site license is appropriate.

Classrooms within Atkinson Hall all have the same computer/presentation hardware/software. The University handles the maintenance/refreshment of these systems. There are three classroom labs in Atkinson Hall. All three hold 40 students, have two large presentation screens, have a whiteboard, and have the same computer image of university software. Instructors may ask to have additional software added to the Atkinson Hall image every semester. Lab classrooms 308 and 310 are set up in rows, like a regular classroom, while 309 is in pods. There are eight pods of five students. Each pod has a small whiteboard and a presentation TV. In addition to switching among the five pod computers, a laptop may also be attached to the display. The instructor's control system may be used to display the instructor's computer on all the pod TVs as well as a pod TV on the classroom large screens.

These three lab classrooms were renovated with new furniture, and 309 was switched from an open lab to the pod-based classroom over a period of four years beginning in 2015. With 309 becoming a classroom, 307 became the open lab. This lab is available for students to use during the hours of 8-5 M-F. Instructors may give public safety a list of any students needing access during non-business hours. The open lab has 18 computers, including two Mac systems. Additional computers are available for student use on the bottom floor of the library. If the software needed by students is not included in the standard software image,

instructors may request that the Atkinson Hall image be installed on several library computers. A list of which computers have the Atkinson Hall image is on the door of each of these labs.

Please list the databases currently available at GC that are applicable to your discipline.

Database	*# of respondents (21)	% of respondents
Proquest	4	19%
JSTOR	2	9%
Business Source Complete	3	14%
ABI Inform	2	9%
eBook Academic Collection (EBSCO)	2	9%
Access via Galileo	4	19%
IBIS	2	9%
**Others:	6	28%
Not Applicable or None	6	28%

*The number of respondents will not add to 21 because some replied that several databases were applicable to them.

**Others include: Journals; thesis databases; Science Direct; Mergent online; Newspapers, etc.

The results of our survey show that Proquest, 19%, followed by Business Source Complete 14%, were the most popular databases applicable to the faculty. Others want to maintain access to Galileo, which is available to all faculty/staff through Unify/Service Applications, and to all universities within the USG System. Surprisingly, the most frequently chosen response (28%) noted that none of the databases available were applicable to their disciplines. This could be a matter of not knowing what is available. One respondent said he/she is new to GC and was not familiar with the databases available. He/she would like to see a workshop on addressing this issue. A quick search of the GC website led to the library page and a link to a research guide page (<https://libguides.gcsu.edu/>). This page has links by subject as well as access to a complete A-Z list of databases that the library subscribes to.

Please list any databases that should be added to those currently available.

Database	*# of respondents (12)	% of respondents
WRDS	2	17%
ICPSR	2	17%
IEEE	1	14%
Not Applicable or None	5	42%

The results show recommendations for full access to the above databases were not popular with the majority. However, a few asked for full access to the databases listed. We are not certain if availability and access to the above databases would solve the issue of the 28% response to none of the current databases were applicable to them, as noted in question 2. The results show that the majority, 42%, do not believe that other databases would be necessary. Those needing WRDS note it would include SDC and Compustat. We are not certain that this is the case. From prior experience, we know WRDS is very expensive; therefore, it is usually only Research 1 (intensive and extensive) universities that subscribe to WRDS. If only two would use it, it would not be cost effective to subscribe to it.

Comments made concerning the statements above

Although several respondents noted they did not have any additional comments or requests, others noted that the computer labs in Atkinson are not up to par. One commented, “Too many times computers don't work at all or take forever to load.” Others wanted the Library to provide ongoing information on accessible databases and software, via training. Others note they wanted access to many scholarly journals they do not have access to, including prominent journals in accounting research. One respondent noted the following, “It is difficult to answer questions 5, 6, and 7 because none of my classes are in the COB building and serve is not the tech people assigned to those classrooms.” This is incorrect as the technicians who work with the SERVE Help Desk are used to handle all university technology issues, classroom or otherwise. It seems this fact should be better communicated to new faculty.

Faculty should be directed to interlibrary loans and/or Galileo for journals not readily available at our library. This may be a more cost-effective approach.

The majority of the CoB faculty believe the University provides enough resources to achieve the appropriate level of technology usage for teaching/research. 37 (90%) faculty answered “Yes” to this question in the CoB technology use survey while only 4 (10%) faculty answered “No.” The faculty members who answered “No” expressed their needs which included wanting to know more about research resources and getting AtlasTI for students. AtlasTI is analytic and research software. The software does offer educational pricing as well as a trial version so it may be possible that the faculty member desiring access just needs to ask. It seems from the below paragraph that AtlasTI may already be available.

The majority of the CoB faculty have used technology/software in their research. Twenty-five (89%) faculty indicated the technology/software they use in the CoB technology use survey. Only three (11%) faculty responded they do not use statistical software in their research, one of which is a lecturer whose research is limited. Technology and software the COB faculty have used include SPSS, STATA, EXCEL, SAS, LISREL, AMOS, R, Qualtrics, AtlasTI, Keyhole, and Virtual Reality. The university supplies SPSS, EXCEL, AMOS, and Qualtrics. STATA and SAS are purchased by departments or faculty themselves. Virtual Reality is purchased by the department. LISREL and Keyhole are from the faculty’s coauthors at other universities. AtlasTI is purchased by the Center for Teaching and Learning (although a website search did not indicate this). R is free software. The Office of Information Technology recently updated their website and now have a list of available technology (<https://www.gcsu.edu/technology/facultystaff>). Faculty need to be directed to this new site.

The CoB faculty seem to remain current in technology skills and knowledge. Sixteen (65%) faculty members indicated that they possess updated technology skills and do not need annual training on new technologies such as software, databases, hardware, etc. Nine (35%) faculty members said they want annual training on new technologies, if it is not mandatory.

Survey summary about software or programs used by courses and degree program

From Table 1, there are 44 faculty members who completed the survey. Out of 44, 16 (36%) reported no program used in their classes, and 28 (64%) reported that they use at least one program in their classes. Some faculty members use more than one program with the maximum of ten different programs used in CBIS 4120 Business Intelligence. On average, faculty members used 1.77 programs in their classes. The survey also requested faculty members to report percentage of programming used for their assignment and lectures. On average, 46% of the overall assignments requires some programming skill. Nineteen percent of the overall lectures are related to some programming.

Table 1: Overall survey statistics

Number of faculty completing the survey	44
No software used	36%

Use at least one software	64%
Average number of programs used	1.77
Median number of programs used	1
Max number of programs used	10
Min number of programs used	1
Average % use of program for assignment	46
Average % use of program for lecture	19

Table 2 shows different programs used by faculty members who completed the survey. A total of 20 different programs are used by faculty.

1	Access	8	Photoshop	15	SPSS
2	Alteryx	9	PowerBI	16	SQL
3	CSS	10	Python	17	Stata
4	Excel	11	QM for Windows	18	Tableau
5	HTML	12	R	19	Visio
6	InDesign	13	SAP	20	WordPress
7	Javascript	14	SAS		

Table 3.1 shows a summary of average percentage programming used in assignments and lectures by degree program. This table is Table 4-1: Current or Emerging Technologies Employed required by the AACSB. In the first column, *Degree*, there are ten different degree programs represented by faculty members who completed the survey. *Courses* is how many different courses fall into a particular degree. Complete information about courses and degree programs are provided in Table 6. Percentage average use in assignments and lectures are calculated from the average of all classes in each degree. For example, for the Area F % average programming used in assignments, it is the average of percentage programming used reported by each faculty teaching Area F courses. The last column, *Programs*, represents the name of programs used for the courses in a particular degree program. “No information provided” means that the information was not given in the survey when it was completed. For each table, the reported numbers/percentages are for the ones answering the survey, not for all classes or instructors.

Table 4-1 required by AACSB: Summary of average percentage programming used in assignments and lectures for each degree (Table 3.1)

Degree	Courses	% average programming use in		Programs
		Assignment	Lecture	
Area F or the common business core classes for the BBA	6	22.5%	1.3%	Access, Excel, Sapling Learning
BBA Accounting	1	15%	7%	Excel
BBA Management	1	60%	0%	Excel, QM Windows
BBA Management Information Systems	6	55.2%	21.1%	Access, ALTERYX, Analytics Tools, CSS, Excel, HTML, InDesign, Notepad, Photoshop, PowerBI, Python, SAP, SAS, SQL, Tableau, Visio, WordPress

BBA Marketing	4	41.7%	34.8%	Excel, Python, SPSS, R
BBA elective (only FINC and LOGS as others are reported with the major as just that major's elective)	2	16.7%	8.3%	Excel
Master of Accountancy	2	45%	20%	Excel
Master of Logistics & Supply Chain Management	1	60%	0%	Excel, QM Windows
Master of Management Information Systems	2	77.5%	50%	CSS, HTML, JavaScript, SAP, SQL, Tableau, Visio
Georgia WebMBA	1	60%	0%	Excel, QM Windows

Table 3.2 shows a number of faculty members who completed the survey and use no programming in class by degree. For example, there are nine faculty members who are teaching an Area F course and use no programming in class. Two faculty members reported that they use no software in class but did not specify a degree program.

Table 3.2: Faculty using no software in degree programs

Degree	Count
Area F	9
BBA Accounting	2
BBA Management	1
BBA Management Information Systems	1
BBA Marketing	1
Master of Logistics & Supply Chain Management	1
Master of Management Information Systems	1
No degree specified	2

Table 4 shows summary of average percentage programming used for assignments and lectures by course prefix.

Table 4: Summary statistics by course prefix

Prefix	% average programing use in		Programs
	Assignment	Lecture	
ACCT	48%	10%	Excel
CBIS	51%	18%	Access, ALTERYX, Analytics Tools, CSS, Excel, HTML, InDesign, Notepad, Photoshop, PowerBI, Python, SAP, SAS, SQL, Tableau, Visio, WordPress
ECON	23%	5%	Excel, Sapling Learning
FINC	18%	7%	Excel
LOGS	40%	5%	Excel, Access, QM Windows
MGMT	39%	9%	Excel, QM Windows
MKTG	41%	38%	Excel, SPSS, Python, R
MMIS	78%	43%	Tableau, HTML, CSS, JavaScript, SAP, Visio
WMBA	60%	0%	QM Windows, Excel

*ECON only includes ECON 2105 and 2106 which are Area F courses for the BBA

Table 5 shows a summary of average percentage programming used for assignments and lectures by course suffix. Upper-level courses tend to use more programming in both assignments and lectures.

Table 5: Summary statistics by course suffix

Suffix	% average programming use in	
	Assignment	Lecture
2000	15%	10%
3000	38%	15%
4000	36%	19%
6000	73%	18%

Table 6 shows summary of percentage average programming used by degree and courses. If faculty members reported more than one program used for a course, the assignment and lecture percentage are averaged. For example, CBIS 4120 reported using Excel 20 % for assignment and 10 % for lecture. Then, CBIS 4120 also reported using SAS 10 % for assignment and 5 % for lecture.

Course	Type	Percentage use	Program	Average
CBIS 4120	Assignment	20%	Excel	15%
CBIS 4120	Assignment	10%	SAS	
CBIS 4120	Lecture	10%	Excel	7.5%
CBIS4 120	Lecture	5%	SAS	

To get the percentage average programming used in assignments and lectures for CBIS 4120, the assignment percentage is $(20\%+10\%)/2 = 15\%$ and the lecture percentage is $(10\%+5\%)/2 = 7.5\%$. This is an example as many more programs were reported as used in CBIS 4120.

Table 6: Summary of programming used by degree and course

Degree	Courses	% average programming use in	
		Assignment	Lecture
Area F	ACCT 2101	20%	0%
Area F	CBIS 2220	23%	0%
Area F	ECON 2105	23%	5%
Common Business Core	FINC 3131	25%	8%
Common Business Core	MGMT 3101	18%	13%
Common Business Core	MGMT 3165	40%	20%
BBA Accounting	ACCT3102	15%	7%
BBA Management	MGMT 3175	60%	0%
BBA Management Information Systems	CBIS 3120	45%	20%
BBA Management Information Systems	CBIS 3210	100%	25%
BBA Management Information Systems	CBIS 3214	80%	50%
BBA Management Information Systems	CBIS 3217	75%	50%
BBA Management Information Systems	CBIS 3218	80%	80%
BBA Management Information Systems	CBIS 4120	13%	0%
BBA Management Information Systems	CBIS 4210	100%	0%
BBA Management Information Systems	CBIS 4214	45%	0%
BBA Marketing	MKTG 3167	10%	10%
BBA Marketing	MKTG 4161	59%	38%
BBA Marketing	MKTG 4198	50%	13%
BBA Marketing	MKTG 4505	20%	16%
Other	FINC 3132	10%	5%
Other	LOGS 3182	20%	10%
Master of Accountancy	ACCT 6155	75%	33%

Master of Accountancy	ACCT 6350	80%	0%
Master of Management Information Systems	MMIS 6191	100%	70%
Master of Management Information Systems	MMIS 6198	68%	20%
Master of Logistics & Supply Chain Management	LOGS 6649	60%	0%
Georgia WebMBA	WMBA 6040	60%	0%

In order to actually assess students' knowledge and use of technology, we should add a quiz in GaView that is taken the first two weeks of the CBIS 2220 Principles of Information Systems class and the same quiz is taken again the last two weeks of MGMT 4195. Having students do a pre and post quiz survey would allow us to assess actual exposure and perception of the level of learning for our students regarding technology. Alternatively, a much shorter quiz could be used at the beginning and end of each class about the technology used in that class. This may be harder to coordinate and maintain over time. This would need to be discussed with all faculty, and the quiz(es) would need to be designed before being instituted.

Would it be useful to do student certifications (like Excel, MOS, SAP, Tableau)? If so, what in and for which majors?

The majority of faculty responding to this survey were favorable to having certifications for students with the overwhelming recommendation that all business students be required to have more knowledge of Excel. In some cases, it was suggested that Excel be specific to a certain major such as Excel for Accounting majors (which is taught as part of the Accounting Professionalism course) or Excel for Marketing majors. Currently, there is an Excel course for Finance, Financial Management (FINC 4505), offered every fall. One responder recommended that an Excel certificate be given to all business majors as a mandatory course.

One responder recommended using industry certifications for major software packages as they are already established and recognized. The faculty responses indicated that SAP is already offered as a certification, but we should also consider Tableau, Python, SCRUM Master, and R. (SCRUM Master certification is already brought to campus annually at a discounted cost to students.) SPSS and data analytics software were also mentioned in the responses as a recommendation for student certifications.

What technologies do students in your area need to know to be competitive?

The overwhelming response to this question was that all business students need to know Excel in order to be competitive. PowerPoint and the basic Office Suite, including Word, was also recommended by several faculty. Access, Python, R, SAP, SPSS, SQL, and STATA were also mentioned several times in the survey responses as technology that students need to know. In some cases, faculty responses indicated that specific recommendations for technology depends on the major. For example, MIS majors should be familiar with CISCO, Tableau, AWS, SCRUM, and AtlasTI. Social media scheduling and performance analytics through programs like Hootsuite, Google Analytics, and Keyhole were mentioned, as well as tax software programs.

If we elect to survey/quiz students on their technology knowledge as part of MGMT 4195, then we could also ask a question about technology use outside of class. We did not ask faculty if they had worked with students outside of class on activities that required technology use. Isarin volunteered the following information. For example, I did two out-of-class projects with students that required intensive use of R and Excel. We could send a separate question to faculty to ask if any used technology with students in non-class activities. If needed, Isarin can provide an example of outside-class projects such as a written report with R code and Excel worksheet.

How do you plan to keep up with the latest technology to use for your teaching/research? Please explain.

Faculty responding to this survey question predominantly keep up with the latest technology by attending academic conferences. The Center for Teaching and Learning (CTL) was also mentioned frequently by faculty as a way to be exposed to new technology. Many faculty members also participate in workshops held by professional organizations and keep up with the latest technology by reading current technical articles and publications. Several faculty members mentioned self-teaching and completing free training available through LinkedIn Lynda and Coursera. A couple of faculty members also mentioned consulting with their College of Business colleagues.

Would you like to see GC implement a Center of Technology (much like the CTL)?

“Yes” and “No” answers are almost equal with 15 faculty finding it helpful and 13 faculty finding it unnecessary. Some respondents believe that CTL or SERVE can deliver the service more efficiently. They argue that instead of a separate center, it should be combined or folded into CTL to avoid redundancies and to aid in integrated learning, that these two should not operate in isolation, and that CTL already offers trainings regarding technologies at its definition. However, the other group of faculty find it helpful after all opportunity costs are considered and only if it leads to funded positions for professionals or faculty lines, arguing that an unfunded center would generate considerable strain in departments that are already shorthanded.

What additional help can the CoB and/or GC provide to assist you with your technology needs?

The general impression is that the CoB is doing well at providing all assistance needed to stay on top of the latest technology/textbooks and to assure classes are updated with current materials. As indicated earlier in this document, sixteen (65%) of faculty members indicated that they possess updated technology skills and do not need annual training on new technologies such as software, databases, hardware, etc. Nine (35%) faculty members said they want annual training on new technologies, if it is not mandatory. Respondents commented on further provisions of hardware/software and required trainings as follows. Respondents frequently asked for more frequent updates of personal laptops as well as lab and classroom technologies, including computers and software (e.g., SPSS). They also asked for uniformed technologies across classrooms and a web-page with a comprehensive list of available software with links to download. Additionally, faculty asked for more discretion on choosing the technologies they need; for example, choice of different brands of laptops or tablets other than Dell.

What changes would you like to see in students' learning related to required technology skills?

No answer to this question

Should the Department of Accounting promote a requirement for each accounting course to implement the use of software technology? Software skills such as Excel, Tableau, Access, etc., are skills currently required in the field of accounting.

Only one answer: “I don't think it is necessary for each course, but there should be a number of accounting courses which include use of the identified software.”

What related technology and improvements are needed in the accounting tutoring center?

Only one answer: “additional computers refreshed more frequently.”

Conclusions

It is recommended that the University consider reducing the refresh rate of computers to every four rather than every five years. A website location should be made known to faculty and updated regular that lists

university hardware and software availability. A CoB web page that links directly to these sites as well as to CTL training and library database information should be created. Faculty should be surveyed every two to three years to maintain current information on technology use and training by faculty. We need to create any faculty assessment that is needed for technology as well.

Students should be quizzed/surveyed pre and post (recommended in CBIS 2220 and MGMT 4195) to see what their knowledge and perceptions are on technology use. The assessment committee should analyze these results annually. If these survey/quizzes indicate that students are lacking specific needed skills, we could consider using graduate assistants to provide workshops in these areas that could be encouraged/required by specific common business core classes.