2018-2019 GROUP ON INFORMATION RESOURCES (GIR) STEERING COMMITTEE

Workforce Development Project

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In 2018-2019, the Group on Information Resources (GIR) Steering Committee developed this resource with the intent to examine the future IT workforce and the skills needed to be successful. As part of this process, the Steering Committee identified several areas of importance about the future workforce and communicated their viewpoints on these topics. The summaries below represent the opinions of the GIR Steering Committee member(s) assigned to the topic.

Workforce Development:
SaaS Trend and Its Impact on the IT Workforce

Molly Greek, MBA, (formerly) Director, IT Enterprise Applications, UC Davis Health Systems

> **"Global cloud IP traffic will account for 95 percent of total data center traffic by 2021."[1]**

So what does this mean for IT staff and the skills and experiences needed for the future? There could certainly be less reliance on infrastructure and development skills; however, there could be an increased focus in the following areas:

SECURITY

If other organizations will be providing data services, we need to ensure they safeguard our data to our standards. This means more focus on vetting our SaaS partners and more attention on authentication and other aspects of security such as firewalls, data loss prevention, and control of privileged accounts.

BUSINESS AND SYSTEMS ANALYSIS

IT staff will need to have a greater focus on understanding the business problem and learning how to identify and document the business and non-functional requirements. There will also be a need to research available solutions and reach out to other organizations to determine the best choice for their own organization. Building relationships within the business and across similar organizations will be important. Organizations in the public sector often require a competitive bid process, so learning how to create and coordinate a Request For Proposal (RFP) will also be relevant.

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[1] Cisco Global Cloud Index: Forecast and Methodology, 2016–2021 White Paper. 2018.

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PROJECT MANAGEMENT

Implementation of SaaS solutions requires a technical leadership role that is well versed in project management methodology. Necessary skills include organization, communication, relationship building, leadership, and significant experience leading projects in the technical space.

CONTRACT NEGOTIATIONS

The Procurement and Legal departments have traditionally handled much of the contract negotiations for software. With SaaS solutions, there is a role for an IT leader to set standards that we expect to see from our solution provider. What is the Service Level Agreement (SLA) for the vendor, how will it be measured, what are the outcomes if the SLA is not met, and who will hold the vendor accountable? What about downtime, communication, and response time on requests? The IT professional will need to partner on the contract to ensure the vendor is held to similar standards that the organization expects from local IT.

INTERFACES AND INTEGRATION

Integration between systems, alerts, and error handling will continue to be the domain of the IT team. Working with the vendor and potentially leveraging an interface engine will be a growing need in the IT domain. There will also be a need for testing in this area.

VENDOR MANAGEMENT

Once the software goes live, the assigned IT staff will need to develop a long-term relationship with the vendor and hold them accountable to the contract and to the customer needs. This will be a new role for some IT staff and will require negotiation, communication, and leadership skills.

CONFIGURATION MANAGEMENT AND MAINTENANCE

Some SaaS solutions are built so that the customer has the responsibility for ongoing system administration; others require a partnership with IT in configuring system changes. There will need to be a primary and back-up administer established, along with expectations for service and training.

ORGANIZATIONAL CHANGE MANAGEMENT

An area that is often overlooked is managing the overall change to the organization that includes communication, training, and actively overcoming organizational resistance to the change. This is a complex subject area and requires specific training and methodology. If the organization wishes to fully enjoy the benefits of the new functionality, this area of the project must be managed as well.

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Workforce Development: Diversity and Inclusion

André Jenkins, MBA, Corporate Director, Penn Medicine Academic Computing Services (PMACS), Perelman School of Medicine, University of Pennsylvania; Amer Alsoudi, MD Candidate, Class of 2021, University of California, San Francisco, School of Medicine

As the use of information technology (IT) in all industries increases, academic medical centers (AMCs) face an increasingly constrained supply of IT workers. This problem is becoming more acute as the baby boomer generation retires. Further compounding matters, the type of IT workers needed in this new digital age are different than the traditional IT roles.

> **Companies embracing technology are looking for more cross-functional talent positioned within business areas to drive innovation and transformation.**

WHERE DO WE WANT TO BE?

One way that AMCs can avoid the supply constraint is to broaden the pool of prospective IT candidates. Being more inclusive with respect to gender, racial, and ethnic diversity not only broadens the pool of potential candidates but also, as multiple studies have shown, has a positive financial impact.

Companies in the top quartile for gender or racial and ethnic diversity are more likely to have financial returns above their national industry medians. And diversity is probably a competitive differentiator that shifts market share toward more diverse companies over time.[1,2]

In the United States, there is a linear relationship between racial and ethnic diversity and better financial performance: for every 10 percent increase in racial and ethnic diversity on the senior-executive team, earnings before interest and taxes (EBIT) rise 0.8 percent.[2]

Nonhomogeneous teams are smarter. Enriching staff with representatives of different genders, races, and nationalities is key for boosting a company's intellectual potential. Creating a more diverse workplace helps to keep team members' biases in check and make them question their assumptions.[1]

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HOW DO WE GET THERE?

There are a number of steps that organizations can take to increase the diversity and inclusion of their IT workforce.

Make it intentional: Increasing diversity and inclusion has to be led and managed. A study of 20 Fortune 500 companies found that performance-related benefits of diversity were only realized when diversity was facilitated by, for example: training leaders on communication and problem solving within diverse teams; making diversity part of everyday vocabulary; and making it possible for employees to address differences in communication style, conflict management, and other misunderstandings.

Involve "majority-group" members in change efforts: Increasing representation is not a "woman's issue" or a "person of color's issue." It is a human issue and a business issue.

Focus on company culture and the talent pipeline: An organization must focus on both; company culture is a significant factor in retaining women and underrepresented groups. There should be an ongoing effort to create a culture of inclusion, where employees feel both valued and empowered.

Analyze job descriptions, recruitment strategies, and interview practices for hidden biases: Examination and review of these hiring tools will help ensure that implicit bias is eliminated and potential candidates are not deterred.

Implement flexible work-life policies: Particularly with the younger generations, potential employees are seeking greater work-life balance or flexibility with work schedules. Implementing associated policies can make AMCs more inviting and assist with recruiting.

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Workforce Development:
Enabling and Empowering through Agile Teams

Marc Overcash, Deputy Chief Information Officer, Assistant Dean, SOM Information Technology, Emory University School of Medicine

Intrinsically, most people acknowledge the importance of teams and teamwork. Performance reviews rarely ask a manager to rate their direct reports on how well they DO NOT work with others. Rather, we look for the ability for people to work collaboratively, to form strong partnerships, and to hum along efficiently towards a common goal.

> **Agility is a growing characteristic we value within IT organizations. With the ever-changing technology space and the ever-shifting academic medicine landscape, IT organizations must be able to pivot and change quickly with the times.**

In much the same way, agility is a growing characteristic we value within IT organizations. With the ever-changing technology space and the ever-shifting academic medicine landscape, IT organizations must be able to pivot and change quickly with the times. And, as the future seems to hold more disruptive technologies and a greater embrace of the digital domain for competitive advantages, an IT organization must know when and how to shape their organization to spin up agile teams.

Agile teams are self-leading, adaptive teams that hold themselves mutually accountable and operate within a prototype-focused, 'test and learn' approach. They tend to be small, multi-disciplinary, focused, and work closely with customers. Once provided a charge and overall outcomes, the direction comes from within the team, not from a constant review and direction from leadership.

In many leading technology companies, there is not a debate on whether an organization is agile—it's a given. Many leading innovative companies are either 'born agile,' or moving there (Rigby), and yet, it's probably safe to say most academic medical institutions tend to be more traditional and hierarchical than adoptive of agile principles. And there are good reasons for that: lack of resources, highly sensitive data, and governance processes that tend to dampen one's agility.

To move beyond the infrastructure and keep-the-trains-running model, our IT organizations need to be a greater resource for innovation and create greater efficiencies and value in our organization. Knowing when and how to apply organizational agility into your work is a key ingredient to make this happen.

RECOMMENDATIONS

- An agile organization and teamwork go hand in hand. Communicate key principles on how to establish and run high performing teams in your organization. One of the foundational readings for teams is Jon R. Katzenbach and Douglas K. Smith's "The Discipline of Teams" published in the Harvard Business Review (July-August 2005).

- Make sure you and your organization understand what is meant by agile teams. At times, people may conflate software development agility with organization agility. Although some principles definitely apply, there are distinctions. Spend the time to educate yourself and your teams and reach agreement on the principles and how to practice them.

- Evaluate and Learn. Establish an agile team to work on the specific opportunity space. They will need reserved time and opportunities to develop their own cadence and style. Remember agile teams tend to have a slower start than working groups and top-down projects. They need to have the opportunity and safety to fail and try again.

- Leaders will need to trust their direct reports and individual contributors in a manner that may be foreign to them. Work with your leadership team to help them set expectations and transition as necessary. As one Harvard Business Review article pointed out: "Reducing control is always scary—until you do so and find that people are happier and success rates triple. In a recent Bain survey of nearly 1,300 global executives, more respondents agreed with this statement about management than with any other: 'Today's business leaders must trust and empower people, not command and control them.' (Only 5% disagreed.)" (Rigby).

- Agility can require a different mindset. As such, you will need to develop criteria to help determine those candidates who will thrive in these types of hybrid environments (where agility and traditional models exist). If you do not already, you will need to incorporate 'collaboration' and 'team work' as essential competencies for your positions.

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Workforce Development: Accelerated Innovation

Bill Barnett, PhD, Senior Director, Research Computing, Harvard Medical School; Wendi Cannon, (formerly) Director of Information Technology, Florida State University College of Medicine

Accelerated Innovation initiatives present a unique challenge to academic medical centers (AMCs). Accelerated Innovation can be defined as areas of information technology that are early in the technology developmental cycle. They are rapidly evolving, with much of the activity happening in technology companies, academic (such as education, informatics, or computer science) departments, or industry. Use cases are generally not well defined and technology systems are experimental or developmental, with few full featured or mature production IT systems. Current (first half of 2019) examples include artificial intelligence, machine learning, data science, cloud computing, blockchain, immersive and augmented reality technologies, and IoT (internet of things) applications.

> **Accelerated Innovation can be defined as areas of information technology that are early in the technology developmental cycle.**

- The job market for these professionals tends to be hot and move rapidly. There is much more demand for workers with these skill sets. Salaries are high and positions get filled quickly - all of which are challenging for an academic hiring culture. It is difficult for AMCs to differentiate themselves and attract talent.

- AMCs are still defining the value and driving use cases for Accelerated Innovation. There can be leadership hesitancy in investing in these areas as there is no clear link between investments and outcomes. Those institutions that do make these investments understand they are taking a risk of mission non-alignment or poor timing.

- There are few defined roles (or even titles) or support structure for these positions - few experts or mentors who can guide or direct these experts to align their work with mission goals and culture to ensure success, or even meaningful outcomes. Human resources departments find it difficult to categorize these roles in existing staffing frameworks.

- The pressures of staffing up new focus areas can put stress on work-life balance to promote and retain the mental and physical wellbeing of the workforce.

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**AMCS THAT WANT TO MAKE INVESTMENTS IN THESE AREAS
CAN CONSIDER THE FOLLOWING STRATEGIES:**

• Engage leadership to clearly define the program and manage expectations that these programs will not likely result in value in the short term but represent a future state investment. Find internal partners who are willing to co-invest in innovative development that may benefit those mission-based programs. Carve out longer term resourcing strategies that provide a longer runway for innovations to mature and demonstrate value. Work early on to provide clear measures of success and differentiation that can provide clarity to the investments in innovative IT and guides to ongoing assessment.

• Partner with local academic departments or industries to craft roles that can help provide clarity and programmatic guidance. This could take the form of internships, mentorships, joint positions, workshops or other engagements. This will help develop a community of support, mentorship, and potential career path options.

• Bring in candidates who are early in their professional careers, or just out of a Bachelor of Arts or Master of Arts program and provide release time for interested staff to pursue accelerated innovation topics. Younger candidates tend to be less expensive, and with that, comes less expertise. But the silver lining is that AMCs can help craft these people to their own needs as they grow. Allowing both internal staff and new hires a certain amount of 'blue sky' experimentation opportunities can help both the employee and the institution grow into Accelerated Innovation programs. Consider carving out time and resources for joint IT and program teams to experiment and better understand potential opportunities innovations present. Include ongoing professional development and lifelong learning.

• Build an accommodative workplace to support employee work styles associated with Accelerated Innovation cultures while enforcing the values and culture of the organization.

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Workforce Development:
Business Acumen

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To be impactful and relevant in academic medicine, IT leaders and staff require not just technical, management, and communication skills, but a deep understanding of the mission areas: education, patient care, research, and public service. This involves understanding the trends, challenges, and opportunities within and across these core business areas. What keeps leadership in these areas awake at night? What external forces (e.g., economic, political, operational) are re-shaping the work that faculty, learners, and staff do today and into the future?

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Developing your personal and organization's business acumen will better coordinate and align efforts for your customers such that you become more effective stewards of technology infrastructure, investment, and services. Better business acumen helps IT be less reactive, and in turn, become a strategic solution provider and partner. As Academic Medicine increasingly becomes more of a digital business, all levels of IT will need to better understand the fundamentals of the core missions. However, the type of business acumen you need will vary depending on your role and the work you do. The amount of interaction you have with "customers" and whether you directly or indirectly impact the outcomes of the mission areas will influence that need. The following are a list of actions/activities that may help in that regard.

ACTIONS/ACTIVITIES

- Encourage staff to participate in business process improvement activities (e.g., LEAN).

- Develop short internships/rotations in business groups to do the work and work with the users.

- Connect IT projects/initiatives to business goals and market forces.

- Invite a leader to an All Hands Meeting from a key business area to present.

- Attend other business unit/group meetings to understand what is happening on the ground.

- Consider Business Acumen as a competency; develop a quiz or questionnaire to use in hiring to assess a candidate's current level of acumen.

- Example questions: What is the biggest threat to health care, or to education, etc.? What sets our institution apart? How does the role you are applying for help improve patient care, the student experience, etc.?

- Reevaluate the premise of embedding IT in business functions or at least implement a shadowing program.

- Attend conference sessions in other business domains.

- Experiment with sending staff to conferences that aren't just IT focused.

- Consider aligning performance management and/or incentive programs to include goals/outcomes from external business units.

Workforce Development:
Working More Collaboratively/Working More in Teams

Jill Mantia, Director of IT Special Projects, Washington University in St. Louis School of Medicine

Academic Health Center (AHC) IT employees are constantly being challenged to maximize data access and knowledge sharing through collaborations but may find it difficult when working in silos is the cultural norm. Changing the culture to be more collaborative requires specifying what that means, getting started through conversation and action, and measuring change.

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- An underlying requirement of digital business is maximizing the data access and knowledge sharing across the entire organization; however, many organizations have siloed departments that have not historically shared information with each other.

- Moving to working collaboratively requires not just a set of technology tools, but, more importantly, a change in management and employee behaviors.

- Setting the priority for the organization to work collaboratively is easy to say, but the progress is difficult to measure.

Working collaboratively requires a commitment by individuals and groups to do work in different ways, to make decisions in different ways, and to give up specialized and single-purpose resources. The benefits of collaborative work are well-documented:

- Business benefits include generating revenue, boosting productivity, improving the allocation of resources, and reducing inefficiencies.

- The business drivers for boosting collaboration include (but are not limited to) reducing process inefficiencies; conducting better research and making better decisions; responding faster to situations; and working with anyone, anytime, anywhere.

- Increasing digital dexterity is an important aspect of thriving in digital business. Collaboration, along with innovation, creativity and analytical thinking, are the core virtues of digital dexterity.

Whether an organization works collaboratively or not is largely determined by its culture: the way people have learned to behave in their organization. So, changing to working collaboratively is a cultural change. Leaders can shepherd their organizations through these changes by specifying what working collaboratively means specifically for their organization.

DEFINE THE BEHAVIORS FOR COLLABORATION USING THE FROM/TO/BECAUSE MODEL

> **It is easy to say that you want the organization to work collaboratively, but difficult to define exactly what that means.**

- Because collaboration is an action, it can be described by a set of behaviors.

- Leadership needs to decide what working collaboratively means to their organizations. No two organizations will work collaboratively in exactly the same way. And they don't need to.

- Use the From/To/Because Model to document the specific behaviors you expect from the team and/or the leadership team. These should be specific behaviors that make it clear when the team is acting in a more collaborative way.

- As a leadership team, develop this list together so that everyone gets a chance to say what they want from the organization. You have to describe the way people behave today (the "From") so that there is obvious contrast between the way that work gets done today and what you expect moving forward.

- The reason why the team working in a more collaborative way matters is what should be documented in the "Because" section of the template. The "Because" should make it clear why the change is necessary, and not just for IT, but for the organization overall. The change has to make sense, given the business strategy and market conditions.

DESIGN THE COLLABORATIVE BEHAVIORS BY USING THE PRISM MODEL AS A GUIDE

Leaders must be able to talk about culture change in order to act on it. Use the purpose, rituals, identity, support, merit model (PRISM) to start a conversation with your team on how to work collaboratively in your organization[1]. The PRISM model provides a way to talk about the underlying reasons why work has been done in silos and what might be the impediments or challenges to working collaboratively.

[1]https://www.gartner.com/en/documents/3875988/the-culture-prism-introducing-five-dimensions-that-shape0

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MEASURE WORKING COLLABORATIVELY TO CONFIRM CHANGE IS HAPPENING

What gets measured gets attention. Measurement of collaboration should include the consideration of three different elements: (1)the output of the work done by the team; (2) team self-assessment; and (3) the leadership team "gut" check assessment.

Follow these considerations:

1. Follow the SMART principles in setting the goals of the team. Collaborative work is best served when there is clarity around the objectives of the team. Use the SMART principles to make sure the goals are clearly understood by all team members. This will make the measurement of whether the goals were achieved easier:

- Specific (simple, sensible, significant)
- Measurable (meaningful, motivating)
- Achievable (agreed, attainable)
- Relevant (reasonable, realistic and resourced, results-based)
- Time bound (time-based, time-limited, time-/cost-limited, timely, time-sensitive)

2. Focus on output and time frames, not how the work should get done. In a truly collaborative endeavor, the work will definitely be done in a way that is different than if one siloed team had done it. You need to give the team the freedom to let the creativity come out of their shared experience.

3. Do not focus on speed or time to complete as an important metric of the effort. As the African proverb states, Next sentence should also be a call-out (larger type) "If you want to go fast, go alone. If you want to go far, go together." Speed will motivate the team to cut corners and fall back on siloed behavior.

> **"If you want to go fast, go alone.
> If you want to go far, go together."**