

Ep.41 Dr. Tarek Sobh

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SPEAKERS

Announcer, Ed Clemente, Dr. Tarek Sobh

A Announcer 00:01

Welcome to The Michigan Opportunity, an economic development podcast featuring candid conversations with business leaders across Michigan. You'll hear firsthand accounts from Michigan business leaders and innovators about how the state is driving job growth and business investment, supporting a thriving entrepreneurial ecosystem, building vibrant communities and helping to attract and retain one of the most diverse and significant workforces in the nation.

E Ed Clemente 00:28

Hello, I'm Ed Clemente. I'm your host today. And we're very fortunate to have Dr. Tarek Sobh, he is the Provost and Chief Academic Officer for Lawrence Technological University. I know a lot of people just say Lawrence Tech, but I don't know what you prefer. But welcome to the show, Doctor, we appreciate you being here today. And you're going to be the incoming President. I don't know if I added that.

D Dr. Tarek Sobh 00:54

Yes, well, thank you so much Ed, it's a pleasure being here and I look forward to our conversation. Yes, it is Lawrence Tech. And it's LTU. And it's also Lawrence Technological University. And we're very proud to belong to it, all of us.

E Ed Clemente 01:10

And congratulations on the your new endeavor to be the President soon. And it's very exciting. I'm sure it is for you, too.

D

Dr. Tarek Sobh 01:18

Absolutely, LTU is truly an eminent institution and I'm truly humbled and greatly honored to be named as the eighth President of the institution starting on January 1, incidentally.

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Ed Clemente 01:34

You got a lot on your plate.

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Dr. Tarek Sobh 01:37

Well, it's, it's worth it. LTU is very, very unique and exceptional in many different ways, as I'm sure this discussion, hopefully will highlight. And we're looking forward to a great future following the presidency of Dr. Moudgill.

E

Ed Clemente 01:52

And I should mention, even though a lot of us who know, you know, Lawrence Tech here, but if you met somebody that never heard of before, what would you tell them you did? And could have been an international person even who's never heard of it? Because you have a big footprint around the world?

D

Dr. Tarek Sobh 02:08

Absolutely. Well, it's kind of really interesting, because the US is the country with the most number of higher education institutions in the world. There are 6000 universities in the US alone, which is a stunning number. But when you drill down, really, it's kind of interesting to note that the number of technological universities, meaning universities that infuse technology into all of their disciplines, and make absolutely sure that their graduates are very well trained within technology, are only 56, less than 1% of these 6000 universities. And, and these are universities that would typically have, of course, and their mission and vision, and also in their name, the word technology, or mining, and so on, so forth. Out of these 56 institutions, there are 28 comprehensive institutions, meaning they offer all the measures all the disciplines all the way from an associate's degree to a doctoral degree. And out of these 28, only 13 private ones. So that distinctiveness I think about Lawrence Tech is that we are one out of 13, private, comprehensive technological universities in the whole country. We are in the company of institutions like the MIT and Cal Tech, RPI, and WPI, and six others. And, and, what even this is more distinctive about us is not only being part of this very elite company, and one of maybe one or two and the whole Midwest, but but we're also very, very linked with industry. You know, what we do in Lawrence Tech very closely associated with industry and industrial projects and R&D for industry, including things like internships and co-ops and such. And we also have a very, as you mentioned, global footprint. We've had students from more than 80 countries and most of our recent years of existence as an institution of higher education. A lot of international, you know, exchange students, lots of faculty with international backgrounds, lots of joint R&D projects, with universities overseas and companies that are global. So you know,

being I guess international global is simply part of our DNA, which I think is something that should be expected of a very well recognized technological institution I mean, technology is a great unifier right, regardless of country regardless of of discipline.

E

Ed Clemente 04:53

Well, they say the universal languages in English, it's actually science right mathematics.

D

Dr. Tarek Sobh 04:59

Some, some say broken English, too, but you're absolutely 100%, right. I mean, STEM education, science, technology, engineering and math is the language of the future, regardless of discipline. You take a look at a university like ours on the kind of R&D projects and the work that we do in industry, it's not really limited to even engineering or sciences. You know, we look at our school of architecture, we work on things like 3D printing of houses, and visual gaming and, and augmented reality design and transportation, digital transportation design. When you look at our, you know, programs in business, you know, we have great programs and Forensic Accounting and Information Technology and cybersecurity, and business intelligence and business data analytics. Same with the Health Sciences, you know, robotic surgery and such. So, so you're right, it doesn't really matter now, in this time and age, what the discipline is, or what the, what you're studying, you know, you need to come out from these programs, very technologically savvy, and very well prepared for the jobs of the future. Many of them don't even have a title yet, right?

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Ed Clemente 06:10

Oh, yes. In fact, you know, I think what you really just mentioned just when all those really unique programs you have is the interdisciplinary ability, I mean, just take like cybersecurity, it's in almost everything now, you know, you you could major in it, but who knows where you're gonna land with it.

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Dr. Tarek Sobh 06:28

You're absolutely right. It's not only even the application as you so rightfully pointed out too, it's, it's actually even the disciplines involved in these future jobs or future careers. I am a roboticist by training I mean, that's my my own area of expertise. And we take a look at an area like robotics, slash automation slash autonomy, which is a big thing right now. You know, mechanical engineers can work in the field, biomedical engineers can work with them, professors, and robotic surgery, mathematicians can work with them kinematic design, people within Industry 4.0. And sensors can work within the area of sensing and recognition, and so on, so forth. And that's very symptomatic of interdisciplinarity when it comes to training. It's not about the degree name anymore Ed, it's about really the skill set that you acquire across so many different disciplines in order to be cross functional in these type of jobs. Whether it's robotics, nanotechnology, who would have thought that there would be a job title called Autonomous Car Engineer, you know, 10 years ago, or Social Media Marketer or, you know, or many other, you know, job titles. And, and what we always talk about at LTU, is, we're

preparing our students for jobs that don't even exist. So they better come out very interdisciplinary, trained and have a breadth of knowledge across so many disciplines, so they could be functional. And most importantly, with the right skill set, though, so they can do their own lifelong learning after they graduate.

E

Ed Clemente 08:01

Well, I would imagine that we've had a lot of other guests on that talk about talent for the future, but you've got to be also teaching them not only just the hard core skills, but also competencies, right? Like, how do they apply what you teach them with these skills?

D

Dr. Tarek Sobh 08:18

It's a, it's, Ed, it's exactly that. And more than that, I mean, when you take a look at the skills required, it's not only the subject matter, it's not only the core knowledge and one or more disciplines, it's, also other things, you know, being able to devise a business plan for what you're proposing, being able to, you know, be a part of a team that is cross disciplinary, that is doing something, you know, and some kind of industry. It's how you're able to read and write effectively to convince your supervisors and or a granting agency or your boss at work, that what you're doing is worthwhile supporting. So there are so many, what used to be called them the old language, soft skills, in addition to the skill set in programming and others and hardware, and automation and so on, that are becoming crucial to the workplace of the 21st century. There is a whole, you know, school of thought that credentials themselves are not necessarily incredibly important anymore. It is the skill set. And building that skill set over a number of years is what makes a professional able to function in the new economy.

E

Ed Clemente 09:35

And you and I talked in a pre-call a little bit about the stackable certificate training, that sort of is going to be required, along with, you know, the combination of entrepreneurship, and people wanting to actually figure out how to go out on their own which might be more required in the future.

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Dr. Tarek Sobh 09:54

Absolutely. I mean, you know, at LTU we just started recently in 2020 a professional development division that is solely exclusively focused on exactly that. You know, you know, stackable certifications, being able to deliver on-site courses, being able to deliver continuing professional development credits, being able to upskill. You know, many of you know, individuals from the current workforce in areas like Supply Chain Management in areas like automation in areas like coding and visualization, data, data sciences and such. And again, it's all part of the new education slash training paradigm. You know, of course, one needs to be proficient at a particular one or two disciplines, but at the same time, they need to have the knowledge to be able to be functional to apply them in different areas. So yes, you're absolutely right.

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Ed Clemente 10:48

And you know, we're doing an MEDC podcast, but we shouldn't forget the Centrepolis, why don't you tell people what that is.

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Dr. Tarek Sobh 10:55

Centrepolis is truly a unicorn in higher education, if I may say so. It's a very unique, very unique and very productive partnership between Of course, our great friends and colleagues and sponsors and MEDC, City of Southfield and Lawrence Tech, and basically it is an accelerator being hosted on the campus of Lawrence Tech. And of course, you know, tons of companies and start-ups have went through the accelerator to try to help the accelerator via you know, state grants, via MEDC support, via foundation support and many other entities. I mean, the accelerator received funding from City of Southfield, from MEDC, from EGLE, from the Economic Development Administration, Department of Energy, several foundations were involved, New Economy Initiative. Ralph Wilson Foundation, William Davidson, Herrick Foundation, lots of corporate partners, Ascension, you know, Rockwell, Cooper Robotics, Epic, Stefanini, Lear, and many others. And the goal here basically, is to try and help these startups, these wonderful entrepreneurs get their business off the ground, get their business to truly affect significant economic impact and development within the region, and would with an amazing level of success. The first four months of this fiscal year, for us that would be June 1 through the end of October, our accelerator has been able to attract more than \$8.5 million, sorry, \$5.5 million dollars of funding to help the startup companies. Many of them end up working with our experts, you know, our faculty and also our students to develop prototypes to move on to the next level of commercialization. It's an incredibly unique environment, it's in the perfect setting and one of these elite 13 technological universities. And, and the economic impact of the accelerator and LTU on the region, because of these kinds of activities, is actually very, very significant. As a matter of fact, talking about economic impact, and that does include the accelerator Ed, in the last year, the year that ended that 2021 Fiscal Year, the economic impact of LTU and the accelerator on the region was to the tune of \$377 million. And that's a large number. And you know, and I mean, very significant. And usually, when you talk about truly great educational institutions, universities, the the economic impact annually is typically about maybe two to two and a half times the annual budget of that university. We are short, a little shier than, you know, shy of maybe \$90 close to \$90-something million dollars budget a year, the economic impact is actually close to five times our annual budget. So that's a dramatic, dramatic thing. And of course, the reason is, again, the business we're in, high tech and manufacturing, circular economy, which is a specialization of the accelerator, advanced manufacturing, and, of course, the fact that we are a tech university. And when you and we are also lucky, because all of our graduates, not all, a very significant portion, stay local. And that's a unique, unique thing. And that really, you know, on the long term cumulatively helped build out this economic development impact, not only in terms of dollars and tax bases and real estate, but in areas like reduction of crime and areas like you know, health and so on, so forth. So the Centrepolis Accelerator is a very, very unique model for higher education, and truly a great example of a public private partnership that really generates jobs, you know, and a lot of them and also does really significant intellectual merit and broader impact in terms of the services and the products that we produce.

E

Ed Clemente 14:50

Ed Clemente 14:50

Well, you know, you're success story yourself. I, I believe you're from Egypt originally, right? [Yes, yes.] Do you ever think you would be out on this path, and end up a President of really interesting institution when you were growing up, I mean?

D Dr. Tarek Sobh 15:07

Six or seven or so, no, I'm just kidding. Well, I came young to the US I came, you know, right after my undergraduate degree, I was, I was an engineering and I was 20 years old. And, and, you know, I, you know, I didn't really have to be very honest, a very specific career path. And my and I, you know, I wanted to work on robotics, and robotics was exotic 30 years ago. So I decided to come to the, you know, top, you know, robotics lab and the US at that time, which was University of Pennsylvania GRASP Lab. And, you know, I finished my degrees actually pretty quickly, actually, both my Master's and PhD, worked in Philips Research Labs for a little while, and then had a chance to teach a couple of classes as a graduate fellow and I fell in love with teaching, you know, was able to do at that time, transformative work, of course, and robotics was, again, what the time when robotics was really emerging. So I liked research on you know, and I always loved playing with machines anyway. So for me, when it looked like, you know, the best place to do research and development and to teach, which I truly enjoyed, that I never thought I was growing up, was to be probably in academia after that, so I did and, and that put me on a, you know, reasonable path. I served them in many administrative capacities of many institutions, including, you know, being a Faculty Chair, the Provost, Vice President, and most recently, Provost at LTU. And, and now, it's the next step, and, and a wonderful institution and a wonderful region with incredible growth potential. So I'm looking forward to it.

E Ed Clemente 16:54

I know you've published like 27 books, but beyond a lot of individual papers, I know you've put out too. And I think people always underestimate how important that is to build the foundation for you to be in a position like this, because pardon the term, it doesn't make you an egg head, it actually makes you are kind of more of a well-rounded person, because of your dealing like a lot of mechanical, all kinds of types of engineering, right? So you're pretty well rounded, I guess.

D Dr. Tarek Sobh 17:24

So I kind of think, you know, the president position is probably the epitome of interdisciplinarity, within higher education, right? Because you should have, you know, you should have probably, you know, experience in so many of these disparate fields, you know, whether it's the field of interdisciplinary education and research, you know, management and of course, leadership. And at the same time, you know, being an entrepreneur, because in this time and age, only entrepreneurial institutions are going to survive, right, given the new models and higher education. You know, so so I think it is necessary right for, for individuals, within executive leadership in higher education, particularly within comprehensive universities that are doctoral, and private, to have that type of, of you know cross cutting background, if you may say, and leadership and management, technology, obviously, and, and interdisciplinarity. And entrepreneurship, because, again, whether whether it's admissions,

whether it's R&D, whether it's marketing, or public relations, or fundraising, being innovative and creative and making a case for support and making a case for why the institution is truly worth existing and worth supporting, requires the kind of background. And believe it or not, you know, at the beginning of this conversation, I mentioned the number 6000, right? How many higher education institutions are out there. The numbers that actually are proving the value proposition that really are producing students who are getting amazing jobs in this future economy and are able to make a living after 4 years of university studies and college are actually probably a very small fraction of these 6000. Believe it or not, you know, we were seeing and parents and industries are starting to question the value of higher education in many cases. You know, kids are graduating after they or their parents invested, you know, anywhere between \$80 to a quarter million dollars to get a bachelor's degree and then end up with these students in the basement right without having actually a job offer. But and that's why we're blessed here at LTU, truly blessed, because you know, we have, we don't have that problem. We know our product. We are delivering the right programming for the right market, you know that to the industries needed within the area of science, technology, engineering and math. And our graduates actually enjoy the highest starting salaries in the metro Detroit area upwards of \$60,000. So we are that institution that are able to graduate professionals that are able to graduate students who can make an independent living at the age of 21. And, and that's something that not only we're very proud of, it's something that we know is becoming more and more rare in higher education.

A

Announcer 20:30

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E

Ed Clemente 20:47

Is there anything beyond the program's you did offer that you said were you're teaching for the future, but is there anything else like a disrupter, you see on the horizon, beyond what you've already mentioned, you know, that you think people should be aware of, and why that helps position you, a private institution, to be in a good position?

D

Dr. Tarek Sobh 21:08

I think moving away from classical degrees and becoming more interdisciplinary oriented, is not probably one of the two or three most important disruptors in higher education, and preparing the workforce of the future, to be very honest. Being able I mean, because again, you know, what are we gonna do have 2000 different degrees, one of them is called 'name the industry 4.0.' The other one is called the nanotechnology and they are the third the score. So I don't think that's the point. The point, again, is a skill, skill acquisition during higher education, making sure that the skills acquired enables one after four years or more, or a little less, to be really proficient in one or two or three interdisciplinary areas, and have the background in order to be able to evolve. You know, as the technology evolves, microcredentials, as you mentioned, very rightfully so, certifications, stacked credentials, and so on, is going to be probably the only way for professionals to do and continue to do lifelong learning and be able to do that while

they are working and providing a living for themselves and their families. The third disrupter, of course, has been prompted by what happened in the last one and a half years, COVID. It's becoming more and more obvious, that, you know, alternative modalities. And I don't mean only the distance learning, or hybrid or in person, but also things like augmented reality for teaching and for learning and so on, is going to become the norm. It is not necessary at all. I mean, from our own experience at LTU, you know, although we are completely in person and on the ground, and we love that and our students love that and our faculty. But through that experience, we realize that for some particular offerings, the online mode actually was more conducive to having more students and more interest and outcomes were better for a few measures. So we decided to keep these particular offerings online. In addition to in person, that's another disruptor that turned off students going far away for college, as opposed to being within a 20, 30, 40, 50 mile radius from where they grew up, is probably a little bit disappearing because of the experience of you know, of what happened last one and a half years. So that's another disruptor. Automation 4.0, Society 5.0, Industry 5.0 are going to be the incoming trend and hiring in the workplace, particularly given where we are in the region that we exist in. And training, you know, in areas like controls and sensors and vision and recognition is incredibly important. Jobs are going to be here they are going to stay. Different type of training will be required for the jobs to do the programming, etc. Jobs that require you know, you know, some AI cognition skills like you know, recognition of things like I mean processing of things like taxes, MRI, CT scans, etc, will probably be completely automated, but we need the force work to automate the process, and use deep learning and machine learning and AI and so on so forth. So we're gonna see a transformation of the kind of shops to support things like Industry 4.0, Industry 5.0 and Society 5.0 and interdisciplinary education that is very technology infused as the way.

E

Ed Clemente 24:43

Well, I hope every high school kid gets to listen to this podcast because they should maybe hear it even in middle school, but they'll have the chance. But I got one last question for you. Sure. You I know you've lived all around the world, especially Philadelphia, too. But yeah, what do you like best about living in Michigan now, or any events you like?

D

Dr. Tarek Sobh 25:06

Honestly, I feel home. I mean, you have to understand I'm a roboticist. You know, my, my life has been, has evolved since I was a kid about building things and making things and playing with things and machines and so on. And I feel I feel that everywhere I am, I have similarly minded people surrounding me, whether I'm in the university or in the community, and, and so on. And I tell my colleagues here, you know, even when I came for the Provost job, you know, a little more than a year ago, I felt home from day one. I mean, it was really, it was really, truly a very welcoming, you know, you know, reception, I guess. So, no, I mean, I everything is going well, I see really great work in Michigan, and in this part of Michigan contributions of MEDC, and community partners, and foundations and industry are really amazing. I mean, I'm looking at Detroit now. And I, of course, I visited Detroit many, many times over the last 30 years before moving here. Looking at Detroit now, and the Metro Detroit region, and the new innovation happening and the new Innovation Centers birthing everywhere, and you know, and all of the new programming, and all of that is truly inspiring, to be very honest. Future is great in this this region, it's amazing. And I look at movements, you know, within the auto industry for autonomy

and electrification and doing you know, cool things, and the opportunities that will exist in this region over the next 20 to 30 years. Well, I personally fear and, and I'm an optimist by nature, but it's becoming obvious, are gonna cause an explosion, you know, in the need of trained workforce and great opportunities for citizens, you know, who live in this area, I am just happy to still play a small part of that, let's put it this way, training the workforce of the future.

E

Ed Clemente 27:06

Well, you're going to be a fantastic president and you're an excellent choice. And I really want to congratulate you again. And once again, our guest is Dr. Tarek Sobh who is going to be the new incoming president for Lawrence Tech University, Lawrence Technological University, and he is the Provost and Chief Academic Officer currently and thanks again, doctor for coming and doing the show today.

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Dr. Tarek Sobh 27:30

It's a pleasure. It's a pleasure. And again, this has been really a great experience and I look forward to talking with you more and I wish all the best to all of our listeners. Future is truly bright in this area and we look forward to Lawrence Tech to play a part in it. Thank you so much for your time. Thank you.

E

Ed Clemente 27:47

Don't forget to tune in next week. We have Chris MacInnes, President of Crystal Enterprises, Inc, known to many of you as Crystal Mountain, and she'll be speaking to us about the quality of life in the future, and why she lived on both coasts, but decided to live in Michigan, especially Benzie County, and also a little side story about the College of Creative Studies, and the Legacy Art Park located there.

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Announcer 28:12

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