Office of the President
100 Institute Road
Worcester, MA 01609-2280 USA

MassEcon keynote speech / WPI President Laurie Leshin
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Host: MassEcon

Good afternoon, everyone – Thank you, Mark (DiNapoli), for the warm introduction. And thanks, again, to MassEcon Executive Director Susan Houston and her team for their hospitality. It's my great pleasure to be with you all today and I thank you for this wonderful opportunity to share some brief thoughts with you on the critical role of educational institutions like WPI in supporting MassEcon's commitment to ensuring that businesses stay, grow, and thrive in the commonwealth.

At WPI, we're very proud of the part we play in Massachusetts' "prosperity ecosystem" – starting first and foremost with great alumni such as **Mark DiNapoli**, WPI Class of 1985, president and general manager of the Suffolk Construction Northeast region. We are so proud of you, Mark; and, of course, MassEcon's Chairman, **Fred Mulligan**, a double Engineer, you might say: Fred earned both his bachelor's and master's degrees from WPI. So glad to hear things are going well at Cutler Associates. You both make our Civil & Environmental Engineering department proud.

Now, I heard that in last year's keynote, Dan Kenary of Harpoon Brewery was a big hit because he served *beer*. Well, I don't have beer today, but I *am* serving up something even better (at least if you're a techno geek like me): ROBOTS!!

I'd like to share the story of my view of WPI's current and potential future impact in our great Commonwealth through the lens of this guy standing over here…his name is **WARNER**, which stands for **WPI's Atlas Robot for Nonconventional Emergency Response**. The real WARNER is busy working, and he's 6 foot 2 and 350 pounds. You might say he's our own nerdy version of Vince Wilfork of the New England Patriots.

We live in a very competitive landscape – MassEcon exists because of this. And we are immersed in a time when technology is driving extraordinarily rapid changes to essentially every corner of the marketplace. So how do we continue to lift the commonwealth, to increase prosperity and quality of life for our region? I believe it's simple – all we have to do is **outeducate, outinnovate and outcollaborate** our peers. At WPI, we are doing this, and I accepted this job because I believe that we can do it even better in the future, and I'd like to use WARNER as one example of how we committed to this.

Outeducate
Education is important because it both draws new talent into the state, and then prepares them to make a positive impact on our economy and our communities. Robotics is a huge industry in Massachusetts. This state ships more robots than any other. When WPI sees such a trend, we

don't just respond with new research grants, in this case we responded by creating the first-in-the-nation robotics engineering program. This program indeed draws students from all over the nation (and the world) to WPI – it draws high tech talent INTO our state.

And in terms of preparing the next generation of tech leaders, I can't imagine there is any better way to do this than through our project based learning program, where students learn by doing. We're very proud of this and will be expanding the program to enable ALL of our students to do a project off campus

Outinnovate
For us, out-innovating is all about inventing the future of technology in the service of human need. WARNER is a great example. WARNER is WPI's entry as one of 11 teams participating in the DARPA Robotics Challenge Finals in Pomona, California, next June. Has anyone here heard of this program?

Very briefly, DARPA is seeking to spur innovation in first responder technology by creating a competition that pits robotics teams from around the world against each other for a significant prize. In this case, finalists like WPI are paving the way for humanoid robots that can help respond to disasters. DARPA officials say the competition was created in the aftermath of the nuclear disaster in Fukushima, Japan, which created an environment that was too hazardous for people to enter. At this competition six months from now, WARNER will perform a number of autonomous and semi-autonomous tasks mandated by DARPA. Some of these tasks including driving a utility vehicle, removing debris blocking an entryway, and climbing an industrial ladder…

- **And it works** – In March 2004, 15 self-driving cars participated in the DARPA Grand Challenge in California. The goal was to foster the development of self-driving ground vehicles. Now, as we sit here in 2014, self-driving cars are a reality. So, is our friend WARNER ready to tackle tasks in the real world? No, not yet. But stay tuned!

- **In many cases, our research is driven by stories that deeply affect our community**. In the aftermath of the December 1999 Worcester Cold Storage fire that claimed the lives of six Worcester firefighters, WPI Fire Protection Engineering researchers invested 15 years in research and development that has helped spark a national focus on the need for new lifesaving technology in the fire service. We're proud of our efforts, and look forward to building on these programs.

Outcollaborate
So the final point is about outcollaborating. No single institution, company, or university can keep Massachusetts on the cutting edge. I would argue not even one city or region is enough to keep us on top – continued focus on collaboration and integration is key to maintaining and expanding our leadership. For us, with WARNER, we've got a ton of critical collaborations:

- **WPI works with Boston Dynamics** – WPI routinely collaborates with Boston Dynamics, which built the body of WARNER (we're building his brain!). We have an

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excellent collaboration with them and look to them to make adjustments and improvements to the robot. In fact, WARNER is visiting them right now for a hardware makeover…kind of his spa day….

- **Collaborating with other Universities and even competing teams** – Let me give you an example of how we collaborate with competing DARPA teams.
  - While WPI is the lead on our team, **Carnegie Mellon University** is our partner in this endeavor, and we've even exchanged lots of ideas back and forth with **MIT,** another finalist in the competition.
  - **The Florida Institute for Human and Machine Cognition** made its walking algorithm available to all the teams. And WPI is currently experimenting with it to provide them feedback for the sake of making it better for the challenge community.
  - So, **while this is a competition, it's also a co-opetition**. And it makes both WPI and the field of robotics engineering that much better.

- **MassTLC Robotics Cluster** – Finally, the MassTLC Robotics Cluster raises awareness for and spurs growth of the region's thriving robotics industry. The goal is to advance robotics field and impact economy, and to keep these innovations in Massachusetts. Organizations such as MassTLC are critical to continuing to advance robotics in this state.

And, of course, we collaborate with many dozens of companies and agencies right here in Massachusetts for our research, student projects and educational programs. Stephen Flavin, WPI's VP of Academic and Corporate Development, is here and can tell you all about the many opportunities to partner with us.

IN THE FUTURE

In closing, at WPI we're committed to working closely with all of you and with MassEcon to **outeducate, outinnovate, and outcollaborate** other states and regions – because the place where competition and collaboration meet will lead all of us to new paths of discovery and stronger business relationships.

And finally, I'd like to extend a personal invitation for you to jump on the MassPike and come see what's happening in Worcester and at WPI. You can visit us anytime, but if you want to be really inspired about the future of technology and of Robotics, you should bring your kids or grandkids and visit us next June 13 for the TouchTomorrow Festival on the WPI campus. It's a free and highly interactive festival celebrating science, space, technology and robots. TouchTomorrow occurs in tandem with the NASA Sample Return Robot Challenge, which WPI runs for NASA – like the DARPA challenge, it's a prize competition funded by NASA to spur innovation in robotic rover technology. Last year we had about 15 teams from all over the world competing – and this year we might just award the $1M grand prize to a team that meets all the challenge objectives. You should come check it out.

I want to thank all of you, again, for your hard work and commitment to ensuring that businesses stay, grow, and thrive in the commonwealth. At WPI we are committed to being your partner in this endeavor. And I wish you all the best this holiday season. Thank you very much.