

IHMC Board of Directors Meeting Minutes  
Wednesday October 2, 2013  
2:00 p.m. CST/3:00 p.m. EST– Teleconference Meeting

Roll Call	Chair Glenn Sturm
Chair's Greetings	Chair Glenn Sturm

Action Items

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| 1. Approval of June 24, 2013 Minutes                 | Chair Glenn Sturm |
| 2. Discussion & Approval of Financing/Expansion Plan | Chair Glenn Sturm |

Chief Executive Officer's Report

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| 1. Research Update            | Dr. Ken Ford |
| 2. Federal Legislative Update | Dr. Ken Ford |

Other Items

Adjournment

IHMC Chair Glenn Sturm called the meeting to order at 2:00 pm CST. Directors in attendance included: Dick Baker, Lewis Bear, Carol Carlan, Bill Dalton, Ron Ewers, Eugene Franklin, Chris Hart, Hal Hudson, Jon Mills, Eric Nickelsen, Alain Rappaport, Jim Reeves, Ray Russenberger, Martha Saunders, Gordon Sprague, and Glenn Sturm. Also in attendance were Ken Ford, Sharon Heise, Row Rogacki, Alan Ordway, Ronnie Armstrong, and Julie Sheppard.

Chair Sturm thanked all the Board members who appeared in person and dialing again commenting that we had perfect attendance at this meeting. He mentioned that while this should be a short meeting it would be an exciting meeting and in many ways, a true turning point for IHMC as we look to secure the financial future.

With those comments, he moved directly into Action Item 1 on the agenda asking for an approval of the June 24, 2013 Minutes. Director Bear motioned approval with a second by Director Franklin. The motion to approve the June 24, 2013 minutes passed unanimously.

Chair Sturm then began a discussion of Agenda Action Item 2 commenting that the expansion of the Pensacola facility constituted a very exciting time for IHMC. He added that as everyone knows, in Pensacola, IHMC is greatly in need of expanded lab space including a robotics lab, additional lab spaces for other growing research areas, bigger board facilities and larger meeting and conference space.

He mentioned that as an update, currently, with the addition of the Atlas Robot and the upcoming DARPA competition, we are now renting 4 facilities in downtown Pensacola

and are excited about the opportunity to bring everyone back to a central location on our 40 S. Alcaniz Property.

He informed the Board that the financing arrangement under discussion today would allow IHMC to take advantage of historically low interest rates and amortize our current facility and new construction in a fixed 15 year obligation at 3.14%, commenting that the current debt service of \$3.7 million on 40 S. Alcaniz comes due in 18 months. He mentioned that we have been working with the County to use their excellent AA credit rating to solicit bank loans for the sole purpose of financing a new facility, paying off the existing mortgage and doing an addition to the classroom space. The County received 3 proposals with variations and with the approval of IHMC, the County chose to select a 15 year fixed amortization on a \$12 mil loan from Suntrust at 3.04%. However, due to the federal budget shutdown, IHMC staff explored extending the rate lock on the loan for 30 more days and this brought the interest rate up 10 basis points to 3.14%.

Chair Sturm explained that while we were prepared to go forward with the approval of the financing today, it seems prudent to watch any significant impact that the federal shutdown may cause the Institute. Chair Sturm asked Dr. Ford to brief the Board on the current Washington impact on IHMC. Dr. Ford explained that the current lasting shutdown has had an impact on IHMC with several stop work orders received on federal research projects and several IPA's temporarily suspended. He added that while R & D has perhaps fared better than other areas, that a lasting federal shutdown of 2 months or longer would have a serious financial impact on IHMC. He then suggested that perhaps it was time to look at various options including a more modest build out of the facilities although the current rate was very advantageous for a full build out.

Chair Sturm thanked Dr. Ford and informed the Board that the County has been terrific to work with and the current proposal for this Board should we choose to move forward would be to request an authorization to sign over the IHMC property and building at 40 S. Alcaniz to Escambia County to the county to secure the debt. IHMC would enter into a 15 year long term lease with the County with payments being equal to the County's debt service on the note and with ownership to IHMC restored at the conclusion of the repayment of the debt service. The particular financing proposal does allow for prepayment of the \$12 million with no penalty at the expiration of 2 years, essentially November 2016.

Chair Sturm then opened the floor for Board discussion of the proposed financing and expansion and a short discussion ensued regarding the small cost of 10 basis points over 15 years to extend the rate lock and the prudence of watching the federal arena and its impact on IHMC operations. Several Board members commented that timing is never perfect and the opportunity to borrow significant funding at these interest rates was an opportunity not to pass up for IHMC.

Director Baker made a motion to authorize board staff to borrow up to \$12 million within a time frame of 6 months at a rate not to exceed 3.5% and for staff to be approved to sign off on the structure and all ancillary documents. Director Sprague seconded the motion.

Some short discussion ensued and Director Reeves amended Director Baker's motion to allow for Director Baker or Director Reeves to sign off on any necessary documents to execute the transaction. Director Sprague seconded the revised motion and with no further comments, the motion to allow staff to borrow up to \$12 million from Escambia County to finance the existing property and an expansion when deemed prudent at a rate not to exceed 3.5% for up to 6 months with authorized Board signors being Director Baker or Director Reeves passed unanimously.

Chair Sturm thanked the Board for their vote of confidence in IHMC and turned to a discussion of a ground floor renovation in Ocala adding that IHMC is also looking at options for renovating the ground floor of the Ocala facility and adding offices and lab space and that there will be some updated details on this to discuss at the December meeting. He reminded the Board that the next meeting is scheduled as a teleconference call at 8:30 Central time on Monday December 9, 2013. Chair Sturm then informed the Board that this concluded the action items and turned to Dr. Ford to provide his report.

Dr. Ford thanked Chair Sturm for the opportunity to provide this report and thanked the Board of Directors for their patience in working through the financing details that we have just discussed and for being flexible with the financing arrangements. He commented that he would be very brief here with a short federal update and research report adding that despite the challenging and uncertain legislative environment in Washington, IHMC continues to propose on new projects and look for additional opportunities at both the federal and private level. He commented that the conventional wisdom among house and senate staff seems to be that this government shutdown will continue for about 2 weeks, marrying this issue together with the debt ceiling debate

Dr. Ford stated that while the federal funding environment continues to be uncertain at best, IHMC pulled in several new awards totaling just over \$1 million during the normally thin end-of-federal-fiscal-year time period. He mentioned that Dr. Niranjan Suri has been awarded a new STTR, or Small Business Technology Transfer project, that will be led by Melbourne Florida based firm Modus Operandi under sponsorship of the Office of Naval Research adding that in this effort, the research team is designing a mixed initiative man-machine distributed fusion capability that allows lower level information fusion, such as entity or event recognition, to be reasoned over and vetted by humans in order to increase the relevance and accuracy of more elusive higher order fusion services, such as adversarial behavior prediction, that support warfighter decision tools. He commented that Niranjan's role is to improve human-machine collaboration as well as to design a predictive analysis component.

Dr. Ford also mentioned that Dr. Jerry Pratt recently received a subcontract from Sandia National Laboratories under the Defense Advanced Research Projects Agency's, or DARPA's, Maximum Mobility and Manipulation program to provide software support for their humanoid robotics work. He added that during the course of this effort, Jerry and his team are providing robotics engineers at Sandia with consultation support for design of humanoid robots and actuators and that they will also be modeling a humanoid robot in simulation, adapting control algorithms to it, and extracting actuator performance

requirements — something we know they are very good at given the results of the DARPA Robotics Challenge. He added that the robotics team will be providing software support to Sandia so that the Sandia team can integrate the IHMC algorithms on their robot.

Dr. Ford also mentioned that IHMC is delighted to have Dr. Bill Clancey back with us after his tenure at NASA, and he is rapidly coming up to speed on IHMC grants and contracts adding that Bill will shortly be beginning a new collaboration with a Pensacola-based health care company provider. He reminded the Board that Bill is one of the world's experts in work system design, and that he is also playing a critical role in our work with STRATCOM (U.S. Strategic Command) project led by Sharon Heise.

Dr. Ford also reported that the contracting details have only recently been finalized on Dr. Yorick Wilks' project funded by the VA, jointly with the James A. Haley Veterans' Hospital in Tampa, to develop a Companion, or digital "buddy," to interact full-time with a seriously disabled polytrauma veterans so as to assist them in everyday living and reduce their dependence upon traditional caregivers. He added that IHMC's role will focus primarily on the language understanding capability of Companions, such that they can converse with a veteran, can reach out to the internet for information, and can establish a rapport based on the Companion's knowledge of the veteran's own life, interests, habits and needs. Dr. Ford informed the Board that a key issue to be explored is whether IHMC can develop dialogue agents that are capable of forming positive long-term relationships with a user and offer the user demonstrable benefit and that in this case, we will create a specialized Home Companion for a TBI veteran whose state and symptoms would benefit from frequent monitoring through conversation and the transmission of vital and timely information to the patient's physician in the Tampa VA's special purpose Polytrauma Transitional Rehabilitation Program. He mentioned that this showcase application will meet a real world medical need, and will create a Companions prototype capable of monitoring and adapting to a patient's emotional state well beyond the basic task of extracting symptom descriptions from conversations.

Dr. Ford also mentioned Dr. Jeff Bradshaw's new collaboration with local company TeleCommunication Systems, Inc., funded by the Naval Air Warfare Center Training Systems Division to develop intelligent tutoring, authoring and delivery services for training at the Corry Station Center for Information Dominance Navy IT "A" School adding that Jeff is supporting TCS with his expertise in both ontology-based modeling, or knowledge models representing a domain, and cyber security to help develop an intelligent tutoring system with an ability to develop new and maintain old instruction content at a reasonable cost – something that has been cost prohibitive in the past.

Dr. Ford also mentioned that in addition to these newly funded efforts, IHMC had been notified of a number of incoming awards including Jeff Bradshaw's pending SBIR, or Small Business Innovative Research, award with Soar Technology, Inc., to perform cognitive modeling in support of cyber defense. Dr. Ford commented that the goal of the effort is to develop cognitive models of both network attacker and defender decision

making that lead to increased understanding of the relationship between network cues, features and characteristics and what attackers choose to (attempt to) exploit. Dr. Ford informed the Board the SoarTech-IHMC approach is to develop a simulated cognitive cyber red team (bad guy) attacker model that can help organizations defend against cyber attack through system testing, operator training and the development of defensive automation and that this attacker-centric approach can be extended to develop cognitive models of cyber defenders and day-to-day system users, enabling a multi-purpose simulation environment for test and evaluation of alternative tactics, procedures and policies for network defense. He concluded by adding that ONR will be the sponsor for this work.

Dr. Ford also reminded that Board that as everyone may recall, IHMC is participating in the DARPA Robotics Challenge, which promotes innovation in robotics technology for disaster relief operations, particularly in circumstances where grave risks to the health and well-being of rescue and aid workers prove too great in scale and scope to allow timely and effective human response. He added that everyone may have seen in the news and that he was extremely pleased to report that IHMC took first place out of 26 of the world's top robotics research groups in the initial stage of the DARPA Robotics Challenge, which was a Virtual Robotics Challenge. He mentioned that the top six teams received funding to move forward in the competition, as well as a 6'3" 330lb "Atlas" humanoid robot built by Boston Dynamics, all of which will compete in a live "physical" event at Florida's own Homestead Speedway in December. He added that the second and final live competition will occur in mid to late December 2014 with \$2M in prize money at stake and that this December's live challenge competition is open to the public, so the Board may wish to start making holiday road trip plans.

Dr. Ford then turned to Outreach adding that the Fall evening lectures and Science Saturdays are off to a great start in both Pensacola and Ocala and that attendance continues to be outstanding at both events in both locations.

He concluded his report by thanking all of the Board of Directors for the confidence in IHMC adding that he speaks for all of the employees at IHMC when he says that we truly appreciate all the time and commitment to the Institute. Dr. Ford then informed Chair Sturm that this concluded his report.

Chair Sturm thanked Dr. Ford for his report and asked for any new business. Hearing none, Chair Sturm adjourned the meeting at 2:26 p.m.

Respectfully submitted,

Julie Sheppard  
Corporate Secretary