1. BACKGROUND

The Continental Automated Buildings Association (CABA) is an industry association dedicated to the advancement of connected home and intelligent building technologies. CABA is an international association, with over 330 major private and public technology organizations committed to research and development within the intelligent building and connected home sectors. Association members are involved in the design, manufacture, installation and retailing of products for home and building automation. CABA is a leader in initiating and developing cross-industry collaborative research, under the CABA Research Program.

CABA has two councils, the Connected Home Council (CHC) focusing on residential homes and the Intelligent & Integrated Buildings Council (IIBC) focusing on larger commercial buildings. Each council produces one collaborative “Landmark Research” project per year which is fully funded by CABA members. These projects are approximately US$150,000 in scope. Each Landmark Research project is directed by a steering committee made up of the project funders. The steering committee provides feedback and input throughout the course of the research to help define the scope, direction, and methodology. CABA and the project steering committee commission a research firm to conduct the research while CABA provides project management and leadership.

The intelligent buildings market is a fast evolving industry segment that is being influenced by a number of emerging industry trends and pressing “hot button” issues. CABA’s Intelligent & Integrated Buildings Council (IIBC) participated in several research ideation sessions to generate topics and select the next IIBC Landmark Research project for 2016. Several excellent ideas were generated, the top three topics were voted on by the IIBC, and “Intelligent Buildings and the Impact of the Internet of Things (IoT)” was selected as the Landmark Research topic for 2016.

The term IoT is used to collectively describe physical objects which are embedded with sensors, software and communication capabilities, allowing them the ability to receive and transmit data within a network. The proliferation of IoT related to buildings has caused a dramatic shift from few siloed building systems to an interconnected system of devices and sensors that have the ability to collect and share data within and across buildings. This, in turn, has created a large opportunity to increase the efficiency, security, productivity, occupancy comfort and profitability of buildings as relevant IoT data can be analyzed remotely and actionable information can be generated.
It is critical that organizations in the building and IoT value chains have a solid understand of the current state and future direction of the Building IoT market, as this market is projected by Memoori Business Intelligence Ltd to reach US$76 billion by 2020. The goal of this research is to provide a comprehensive examination of all the major aspects of IoT related to buildings, including: state of the market, building IoT trends, business opportunities, technical barriers and opportunities, future market direction, issues, case studies and industry recommendations.

2. PURPOSE OF THE RESEARCH

The purpose of this research is to examine the impact of IoT related to intelligent buildings. This research should provide actionable data relevant to all segments of the intelligent building value chain, including, but not limited to: building owners, technology manufacturers, builders and developers, integrators and installers, service providers, insurance companies, industry associations and utility companies.

Topics that might be covered in this research include, but are not limited to, the following:

- The use of data analytics to create valuable insights from building data.
- Mobile dashboards to visualize key building data from mobile devices.
- Physical security (video surveillance, entry management) and cybersecurity in buildings.
- Cloud storage versus on-site versus hybrid.
- Real-time monitoring and control of building systems.
- Energy efficiency improvements.
- Centralized management and convergence of building systems through the use of IoT.
- Edge-to-Cloud services in buildings.
- The role of adaptive automation.
- The similarities and differences between new build versus retrofit IoT applications.
- Interoperability, including open versus proprietary IoT systems and protocols.
- User interface: mobile versus PC versus dashboards.
- Role of gateways and data centers.
- Wired versus wireless solutions.
- Emerging IoT players in the industry.
- Business analysis and value proposition for each stakeholder group.
- Inhibitors to the building IoT industry growth.
- Evolutions of industry IoT standards.
- Barriers towards adoptions of IoT solutions.
Disclaimer: The topics mentioned above are meant to be a general outline of this research project. The final research may not address all the topics outlined above, and additional topics may be added. The scope of the final research will be narrowed down or expanded further in the RFP submission process, and later by the Steering Committee.

3. RESEARCH VENDOR QUALIFICATIONS

Overarching criteria will be determined by the Steering Committee and CABA, via competitive bid criteria and process. At a minimum, the research firm will have a history of working and conducting research relating to intelligent buildings and high-performance buildings.

4. STRATEGIC VALUE OF THE STUDY

The outcomes of this collaborative research project should provide the Steering Committee members a clear understanding of the IoT opportunities and solutions in relation to intelligent buildings. This study will assist organizations to make sound business decisions using reliable third party qualitative and quantitative data.

5. PROJECT SCOPE

The scope of the project will be narrowed down or expanded in the RFP submission process and then narrowed or expanded even further by the Steering Committee once the project is awarded. This prospectus is meant to provide a general overview of the final research project.

6. STUDY APPROACH and RESEARCH METHODOLOGY

This Landmark Research will leverage several different methodologies to maximize the value of and validate the deliverables

Review and Analyze Existing Applicable Industry Research:

The research will leverage relevant industry research and thought leaders to create a base from which the Steering Committee and research firm can begin to develop concept hypotheses for testing.

Methodologies to be considered for opportunity identification and vetting:

Qualitative Research (In-depth Interviews) and Quantitative Research (Industry Questionnaires) will be used.

7. PROJECT DELIVERABLES
The general deliverables for this project consist of the following:

- Introductory webinar (1 hour) to help promote the project to existing members and potential funders.

- Kick-off webinar to the Steering Committee to outline the research purpose, scope, objectives, approach, and timelines.

- Regular Steering Committee meetings (via webinar) to communicate; progress, preliminary findings, approvals of research methodologies, and next steps. Depending on the stage of the study, email updates may at times replace webinar meetings.

- Delivery of four draft documents in a format that CABA will provide through past CABA Landmark Research.
  (1) Full report (Microsoft Word format)
  (2) Executive summary (Microsoft Word format)
  (3) Full report presentation (Microsoft PowerPoint format)
  (4) Executive summary presentation (Microsoft PowerPoint format)

- Delivery of four final documents
  (1) Full report (Microsoft Word format)
  (2) Executive summary (Microsoft Word format)
  (3) Full report presentation (Microsoft PowerPoint format)
  (4) Executive summary presentation (Microsoft PowerPoint format)

- Final group webinar (1.5 – 2 hours) will be presented to all the funders, after the final documents have been delivered.

- Individual Steering Committee organization webinars (1 hour) for each organization on the Steering Committee, unlimited attendance per organization. These webinars will be presented after the final documents have been delivered to the funders. Steering Committee members have one month to arrange for these presentations.

8. PROPOSED TIMELINE

Timeline details will be finalized during the initial planning session by a selected research firm, CABA and the Steering Committee. This timeline is tentatively based on the scope of the project as defined in this document. Depending on the breadth of agreed specification, estimated project duration is 18 weeks, from prospectus development to final report delivery. Steering Committee members will be asked to provide valued input to project development. The selected research firm, in conjunction with the CABA, will prepare detailed timelines, project milestones, responsibilities, and action/delivery dates; as agreed to by the Steering Committee. Bi-weekly webinars with the Steering Committee will serve to keep funders abreast of progress, developments, and key findings.

The following outline may be adjusted, pending confirmation of tasks and timing:
<table>
<thead>
<tr>
<th>Activity</th>
<th>Anticipated Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research set-up and kick-off meeting</td>
<td>June 1, 2016</td>
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<tr>
<td>Secondary research</td>
<td>TBD</td>
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<tr>
<td>Primary research</td>
<td>TBD</td>
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<tr>
<td>Analysis and reviews</td>
<td>TBD</td>
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<tr>
<td>Draft report delivery</td>
<td>TBD</td>
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<tr>
<td>Final report delivery</td>
<td>TBD</td>
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<tr>
<td>Final Group Webinar (1.5 – 2 hours) with all the funders to highlight the findings of the research.</td>
<td>TBD</td>
</tr>
<tr>
<td>Individual Steering Committee Webinars (1 hour each), one (1) webinar for each organization on the Steering Committee.</td>
<td>TBD</td>
</tr>
</tbody>
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9. PARTICIPATION OPPORTUNITIES

**Diamond Funder ($5K):**
- Name and logo will be placed on the front page of the research report, slide deck, media releases, and marketing material.
- Opportunity to participate in the final webinar with all the funders which will highlight the findings of the research in detail.
- Final report, executive summary and presentations.

**Emerald Funder ($10K):**
- All benefits of the Diamond Funder.
- Will be on the Steering Committee and allowed to: define the research scope and methodology, provide feedback and input regarding the direction of the study, and participate in Steering Committee webinars.
- Will have a special one (1) hour webinar specifically for your organization. Anyone from your organization can attend and receive a detailed overview of the research findings that relate to your organization.
- Will receive bonus research reports that the vendor may provide.

**Ruby Funder ($15K):**
• All benefits of the Emerald Funder.
• Will receive a case study within the research to highlight the work your organization has been doing in the area. Case studies are typically supplied by the funder, but in some instances research firms have developed case studies on the funder’s behalf. This case study will be included with the executive summary, which will be distributed to all CABA member contacts.

Note: All funds are in US dollars.

10. PREVIOUS CABA RESEARCH

CABA has undertaken a number of Landmark and Multi-Client Boutique research projects. To better understand the intelligent building research that CABA has completed, please review these executive summaries and full reports:

(Multi-Client Boutique, Full Report, 2015)

Intelligent Buildings and Big Data (2015):
http://docs.caba.org/MarketingEmailer/IBBD%20exec%20summary.htm
(Landmark, Executive Summary, 2015)

(Multi-Client Boutique, Executive Summary, 2015)

Life Cycle Costing of Intelligent Buildings (2013):
http://www.CABA.org/LCCIB (Full Report and PowerPoint Presentation)
(Landmark, Full Report, 2013)

(Landmark, Executive Summary, 2013)

Smart Grid Impact on Intelligent Buildings (2011):
(Landmark, Executive Summary, 2011)

Market Size in North America (2010):
(Landmark, Executive Summary, 2010)

11. CONTACT INFORMATION:

Greg Walker
Research Director
Continental Automated Buildings Association (CABA)
Email: walker@caba.org
Phone: 613.686.1814 x227
Website: http://www.caba.org