# SmartCI Research Center

# 4th Call for Concept Paper

Date: Jan 1st, 2015

# Table of Contents

# 1. Introduction

**Virginia Tech-Middle East & North Africa (VT-MENA)** project is a partnership between Virginia Polytechnic Institute and State University and the Egyptian Ministry of Higher Education that aims to establish sustainable Center of Academic Excellence (CAE) for research & graduate studies and resident Collaborative Degree Programs (CDPs) in Egypt. This would help Egypt to meet the serious demand for qualified faculty and professionals in areas of modern technology and sciences as well as facilitate cultural exchange between USA and Egypt.

Due to serious need for the development of scientific research systems in Egypt, VT-MENA established **Smart Critical Infrastructure (SmartCI) research center** in June 22nd, 2013. This center aims to follow the international successful model of the integration between the academic research and industry. Specifically, **Smart Critical Infrastructure (SmartCI) Research Center** should provide innovative solutions for the main Egyptian problems in transportation, educational systems, food, agriculture, power systems, and emergency services. Furthermore, it comprises a public-private partnership to provide a pioneering engineering and science education model through integrated research and technology transfer services (including education, training, consulting, and technology assimilation into the society) to resolve challenges facing the ever-evolving and increasingly essential integration of Communications and Information Technology and Critical Infrastructure resources and services.

Key to enhancing efficiency, dependability, and security of Critical Infrastructure services is the deep integration of computing, communications and information throughout the massive-scale Critical Infrastructure systems. Such integration promises a wide ranging impact on Critical Infrastructure services, from enabling information sharing and complex system simulation and analysis, to enhancing device control and adaptation, to facilitating resilient system operation, recovery and evolution. This will lead not only to advancing existing Critical Infrastructure services but also to emerging new ones.

**With the SmartCI goals in mind, SmartCI Research Center invites concept paper in research areas of interest in Section (3) of this document. SmartCI Research Center is planning to incubate up to 10 research teams in this cycle to write their research proposals through monthly research incentive of 1500 EGP for each team member and up to 10000 EGP upon proposal acceptance from the target funding agency.**

## 2. Background

Infrastructure in Egypt has been falling back over the last ten years which makes it impossible to be fixed and improved over short term plans. Moreover, the increase in population, slums, poor planning, random solutions in fixing issues and using imported solutions which are often inappropriate solutions make things more complicated.

Moreover, despite of the fast development of Information and Communication Technology, it did not have the significant impact on our critical infrastructure. Due to the foundation of part of the infrastructure before the fast development of the Information and Communication Technology in addition to poor planning, ignoring development and using imported solutions.

Thus, the first and most important step to develop Critical Infrastructure in Egypt is to integrate Information and Communication Technology in order to build research knowledge base that can watch, secure and control elements of this infrastructure.

4th Call for Concept Paper

## 3. SmartCI Research Areas of Interest

SmartCI Research Center targets solutions to real problems facing the Egyptian Society through applied research projects that integrate Communications & Information Technology into Critical infrastructure Systems.

**Proposed Projects topics may include but not limited to:**

- **Water Supply Systems**

- **Renewable Energy**

- **Intelligent Transportation**
  Mobility and intelligent infrastructure for transport, smart transportation systems, optimal traffic control, congestion analysis and handling, intelligent vehicle systems, vehicle to vehicle communication.

- **Healthcare services**
  Telemedicine and e-health, Cloud based mobile based medical diagnostics, Cloud based health records, Bioinformatics research, Medical image processing.

- **Power Systems**
  Smart Grid, renewable energy (Nano technology application for Solar cells).

- **Emergency services**
  Cognitive radios for crisis management, cloud based crisis management systems.

- **Educational systems**
  E-learning, Visualization for improved textbooks, HCI for E-textbooks and skill based teaching, Cloud computing for IT infrastructure.

- **Communications & Networking**
  Internet access solutions to rural areas

- **Government services**
  Security of E-government systems, Biometric research, wireless E-voting services.

- **Food and agriculture**
  E-agriculture, GIS-based systems for agriculture, bioinformatics for agriculture.

## 4. Application Procedure

- **Research Teams should:**

  - ✓ find funding opportunities for their ideas with the help of SmartCI administration team.

  - ✓ prepare concept papers to clarify their ideas to SmartCI Research Center

    (The team should use concept paper template on SmartCI Research Center official website: http://smartci.alexu.edu.eg/?cat=16)

  - ✓ submit their concept papers to SmartCI Research Center according to submission guidelines and deadline described in Section (9) of this document.

- **Upon concept paper approval:**

  - ✓ PI signs contract with SmartCI.
  - ✓ SmartCI offers a monthly research incentive of 1500 EGP/ team member for up to six months or up to their full research proposal submission to the target funding agency **(the sooner of them).**
  - ✓ Administrative and financial team will help in the submission process to funding agencies as needed by the Research team.

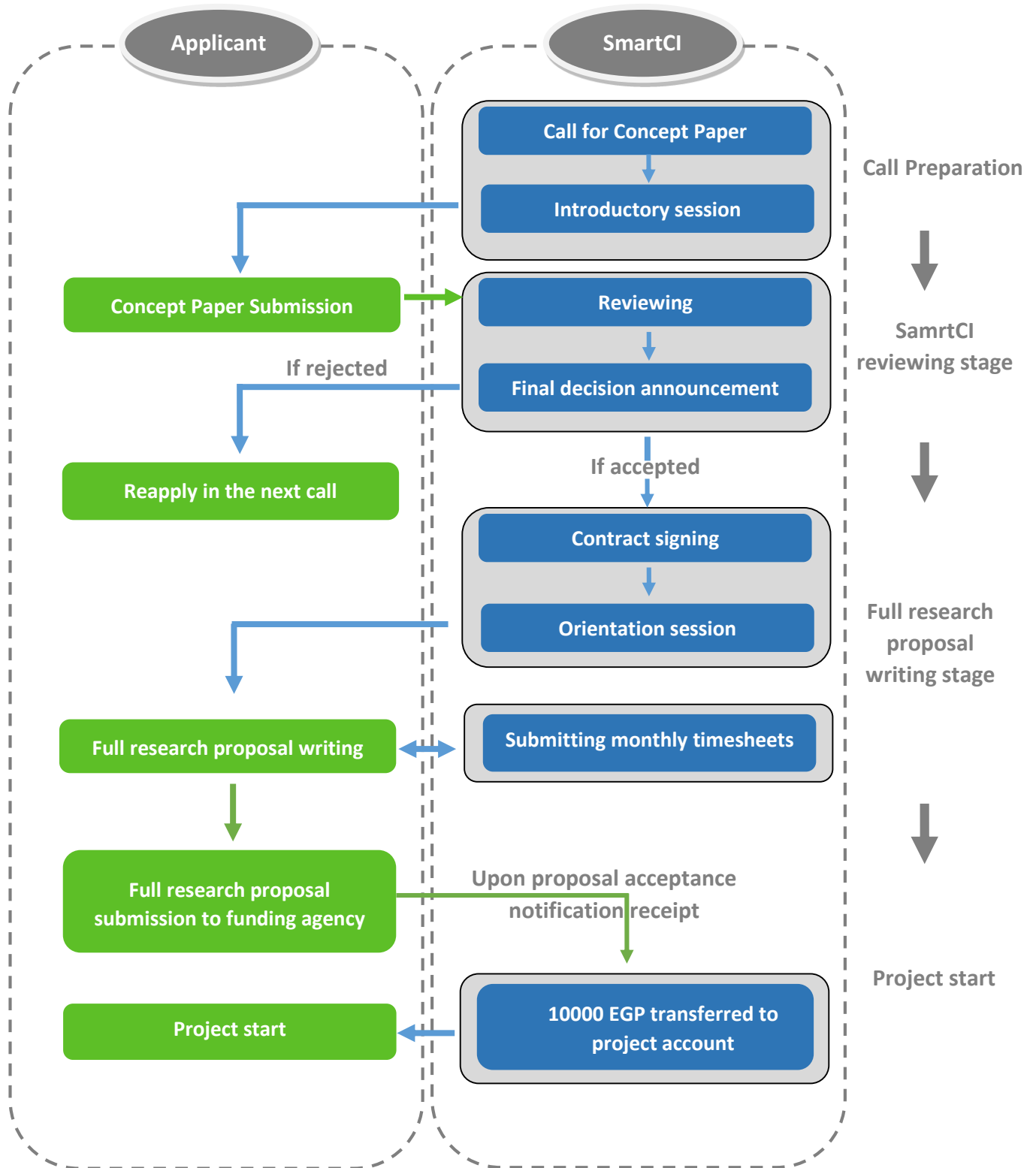- **Upon the receipt of funding agency acceptance notification:**

  - ✓ SmartCI Research Center will transfer an award of 10000 EGP/team to the project account.
  - ✓ SmartCI Research Center signs the agreement with the funding agency.
  - ✓ SmartCI Research Center signs an agreement with the research team Principal Investigator (PI).
  - ✓ SmartCI administrative and financial team take full responsibility of all research administration aspects of the research proposal.

**The chart in the next page summarizes the call procedure starting from the call opening to the research project start.**

4th Call for Concept Paper

## 5. Benefits gained by SmartCI Research Center affiliates

### 5.1. Upon Concept paper acceptance

- applicants will be awarded with 1500 EGP/month for a period up to six months or until their full research proposal submission **(the sooner of them);**

- some funding agencies award their funds to nonprofits rather than to individuals, affiliating yourself to SmartCI Research Center can increase your likelihood of receiving funding;

- SmartCI offers
    - ✓ access to existing equipment and good working environment for research;
    - ✓ technical editor;
    - ✓ Research Writing Room for applicants to write their research proposal, equipped with:
        - o wifi and 3G connection
        - o printers (laser all in one, laser black and officejet color)
        - o white boards
        - o servers
        - o access to VT libraries

### 5.2. Upon Full proposal acceptance, SmartCI offers:

- total award of 10000 EGP to be transferred to the project account;

- tax-exempted fund as SmartCI Research Center is a non-profit, governmental center, which is saving the project an essential start-up fee;

- experienced financial management for your fund by SmartCI Research Center whereas some projects require your spending considerable time administering the funds.

## 6. General Rules and Obligations

- Projects should be related to **<u>SmartCI</u>** development.

- Applicants who signed contracts with SmartCI during the previous 3 calls for concept paper may apply as PIs or research team members in this call but only **new members who have not been funded during the previous 3 calls will receive incentives.**

- SmartCI Research Center will fund up to **<u>three</u>** members for full research proposal writing.

- Full research proposal preparation period should not exceed **<u>six</u>** months.

- Concept Paper should not exceed **<u>twelve</u>** pages including the cover page and references.

- Title to any equipment or supplies purchased or manufactured in the performance of the project shall vest in SmartCI Research Center.

- Overhead cost of the fund shall be transferred to SmartCI Research Center to be used in return of facilities and services offered by SmartCI.

- Any concept paper that does not involve team contribution will be excluded.

- SmartCI will acquire IP share of any filed patents.

## 7. Evaluation

### 7.1. Criteria

- Relevance and eligibility to funding agency
- Relevance to SmartCI theme
- Importance of the proposal to industry and society
- Research Methodology
- Task distribution over team members
- Timeline for full proposal writing
- Team members' qualifications and profiles
- Importance of expected outcomes and liability for publication

### 7.2. Decision

According to the above criteria, reviewing panel make their final decision and PIs receive decision letters include one of the following decisions:

- **<u>Accepted:</u>** without any changes.

- **<u>Accepted with minor changes:</u>** applicant is requested to make minor change and resubmit a revised version for the same cycle.

- **Rejected:** with recommendation to resubmit in the next call after addressing weaknesses clarified in the decision letter/ or the idea is not accepted for reasons clarified in the decision letter.

## 8. Timeline

- Concept paper submission opens: **January 1st, 2015**
- Concept paper submission deadline: **February 1st, 2015**
- Final decision announcement: **March 1st, 2015**
- Revised concept paper submission deadline: **March 8th, 2015**
- Contracts signing on: **March 15th to 31st, 2015**
- Hosting researchers starts on **April 1st, 2015**

## 9. Submission Guidelines

- Applicants should submit their concept paper electronically on the website through the following link: http://smartci.alexu.edu.eg/?cat=16
- Concept paper to be uploaded in PDF format, file name should be "**PI's name_ short name for the proposal**"
- Revised Concept paper to be uploaded in PDF format, file name should be "**Revised_PI's name_ short name for the proposal**"
- Any submissions after the submission deadline will be excluded.
- Inquiries and questions regarding this Call for Concept Paper are to be directed to **Eng. Esraa Moustafa**, **SmartCI Research Administration** at **smartci_q@mena.vt.edu**.
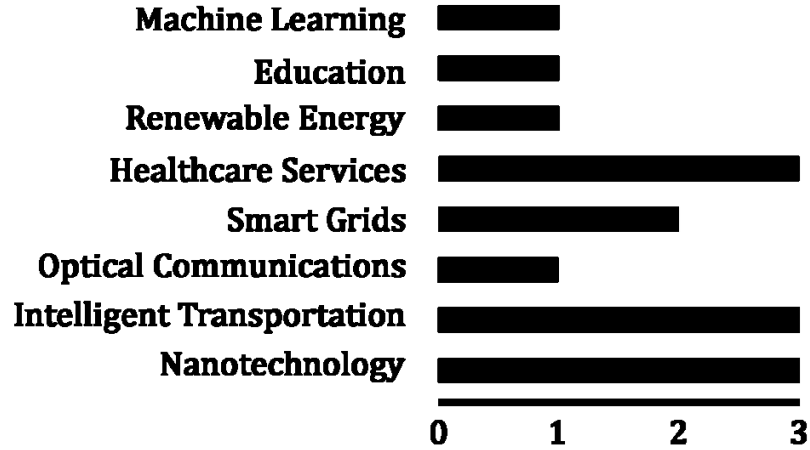
## Appendix I

### SmartCI Facts...

- The 1st call was within limited scope in Faculty of Engineering, Alexandria University.

- The 2nd and 3rd calls were within faculties of Alexandria University.

- SmartCI offered a number of research seminars and workshops for researchers during their proposal writing period.

- SmartCI hosted 15 proposal writings during 1st, 2nd, and 3rd calls for concept paper in different research areas.

- Reseachers at SmartCI submitted 12 proposals to different national and international funding agencies, such as Microsoft, QNRF, STDF, ITIDA (ITAC program).

- Now, SmartCI is incubating 10 funded research projects with total budget of 11 million EGP from NTRA, QNRF, STDF, and ITIDA (ITAC program), AlexRep.

- Currently, SmartCI is establishing:
  - Nanotechnology Lab
  - High Performance Computing Lab
  - Cognitive Radio Lab (communications and networking)

## Proposal Writings Research Areas



## Funded Research Project

4th Call for Concept Paper