

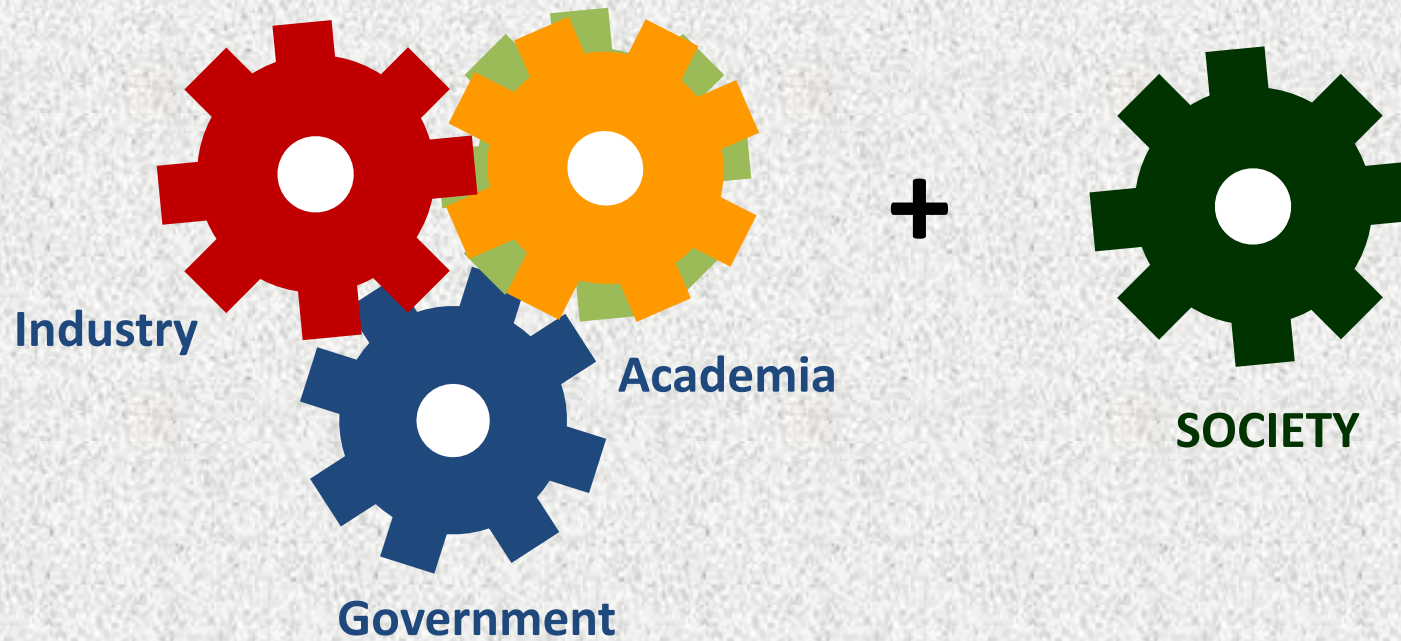


**FICS**<sup>17</sup>  
INNOVATE FOR TOMORROW

FINDING INNOVATIVE & CREATIVE  
SOLUTIONS FOR SOCIETY

<http://fics.seecs.edu.pk/>

<https://www.facebook.com/NUST.FICS/>



S  
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Y

An Integral  
Component  
of the  
Ecosystem

## NUST's Mission Statement

To develop NUST as a  
comprehensive, research-led university  
with a focus on

*Technology, Innovation, Entrepreneurship and  
Community Service*

# Discernable Social Impact Through Technology

Leverage NUST's S&T base & research infrastructure to add value to society

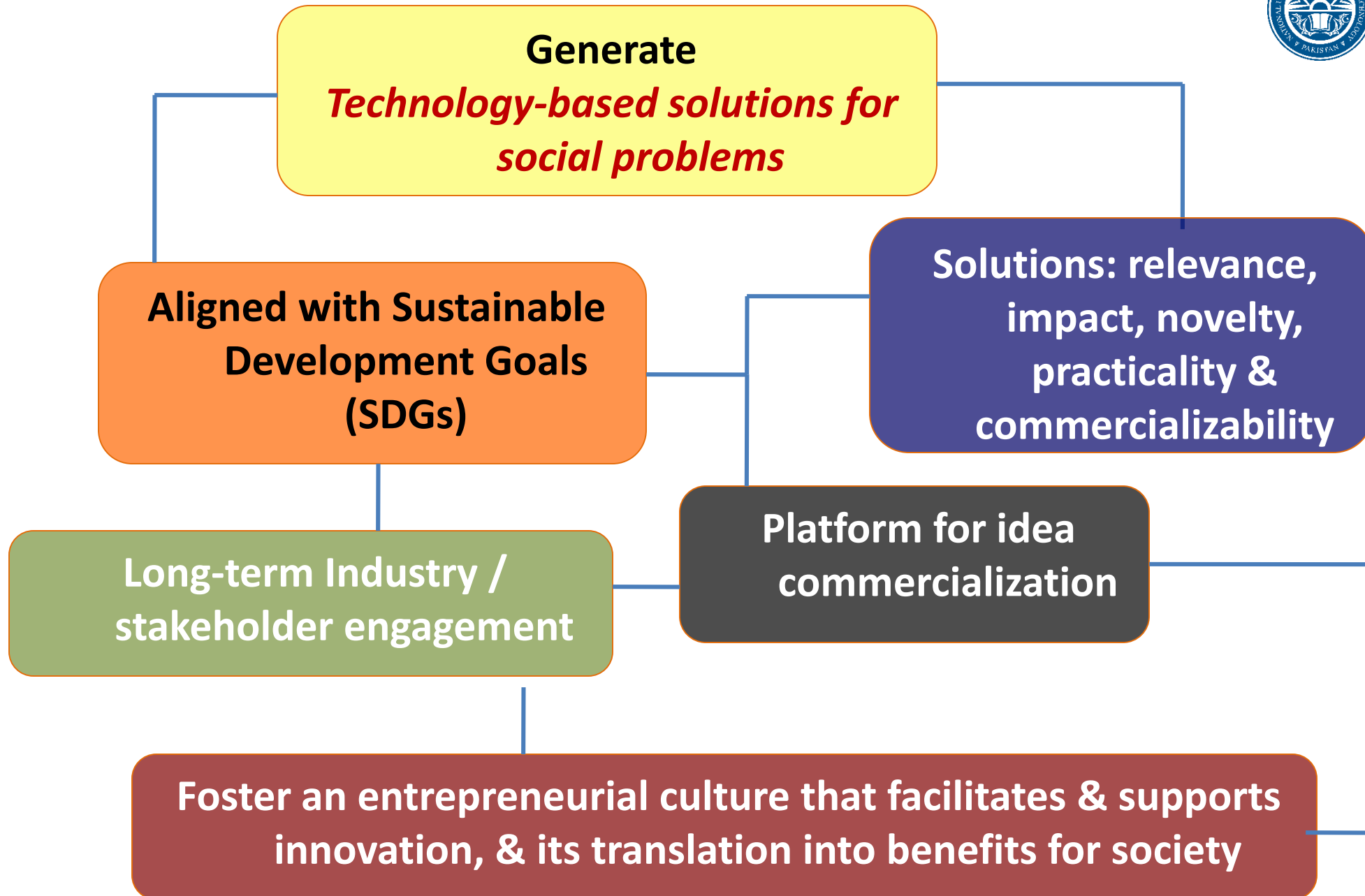
- Clean Water
- Environment
- Energy
- Water Resource Management
- Cyber Security

- Education
- Health
- Climate
- Infrastructure
- Safe cities



# Transition from 2014 - 2016







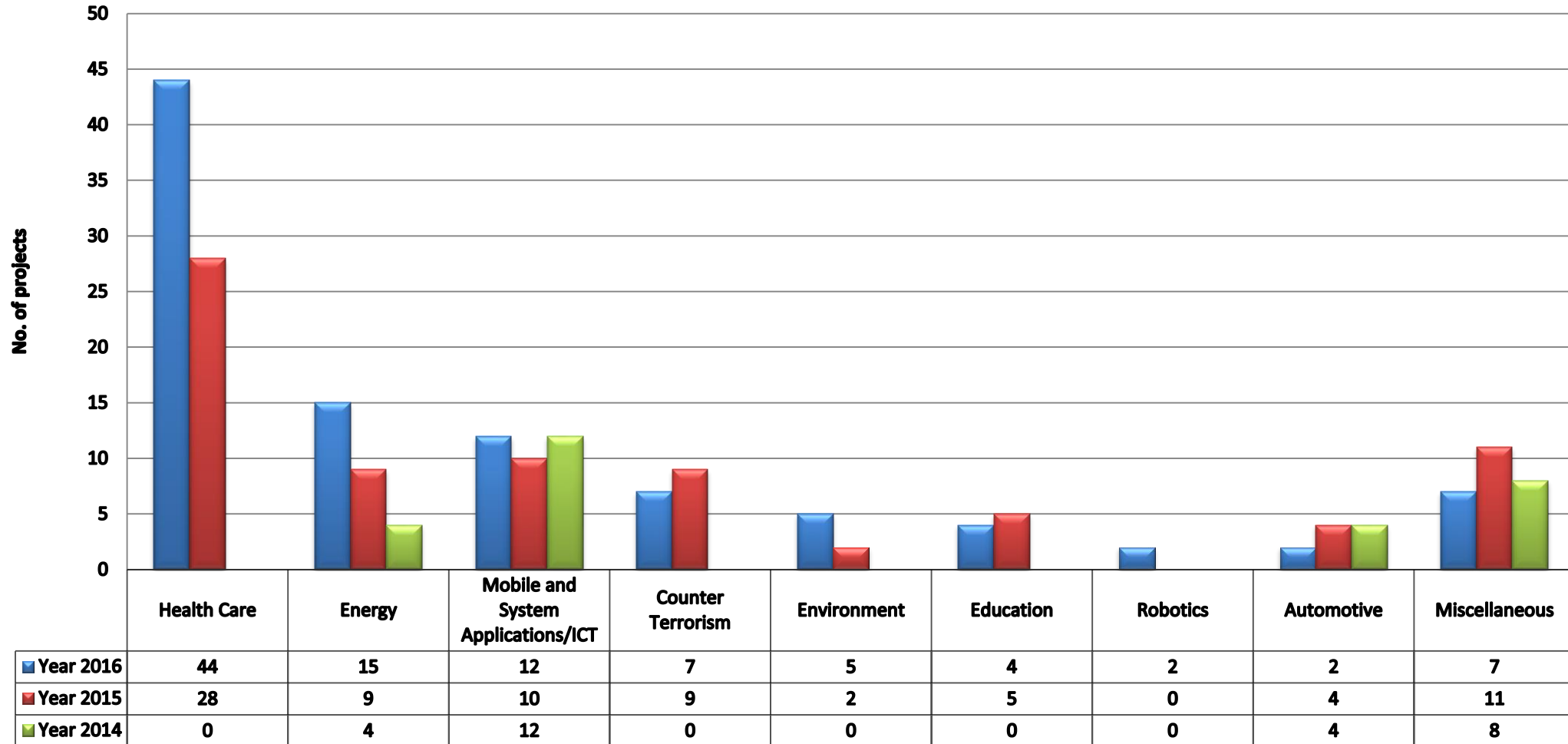
# SUSTAINABLE DEVELOPMENT GOALS



# FICS Project Categories: 2014 – 2015 – 2016



FICS<sup>17</sup>  
INNOVATE FOR TOMORROW





# The Competition – A Means to an End



FICS<sup>17</sup>  
INNOVATE FOR TOMORROW

Launched: 01<sup>st</sup> Nov 2016

**STAGE 1**

Nov-Jan (**25<sup>th</sup> Jan 2017**)  
Idea / Synopsis Submission

**STAGE 2**

Jan-Apr (**18<sup>th</sup> Apr 2017**)  
Video / Presentation to Industry

**STAGE 3**

Apr-Jun (**end May 2017**)  
Prototype Development/Demonstration to Industry  
Selection of Winners

**Industry-funded Prototype Development Fund**



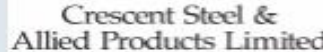
- ▶ Project was conceived & initiated at SEECs
- ▶ CAC was brought on board in 2014 - to help bring in Industry
- ▶ *Project was relaunched from CAC Social Sector & ICT Sector*
- ▶ For FICS 2014 CAC brought in Industry as judges

## ► Involvement of Industry & Alumni

- ◆ Idea Generation sessions
- ◆ Industry-submitted ideas
- ◆ Mentors & judges
- ◆ Development of evaluation criteria
- ◆ Prototype Development Fund to improve quality of prototypes
  - ❖ 2015: PKR 350k (P@SHA)
  - ❖ 2016: PKR 150k (Telenor), PKR 400k (CSAPL)
  - ❖ 2017: PKR 1 M (CSAPL)
- ◆ Financial support for the project
- ◆ Efforts to get startup seed funding







## FICS PARTNER COMPANIES

FUELING SOCIAL ENTREPRENEURSHIP THROUGH TECHNOLOGY

Judges



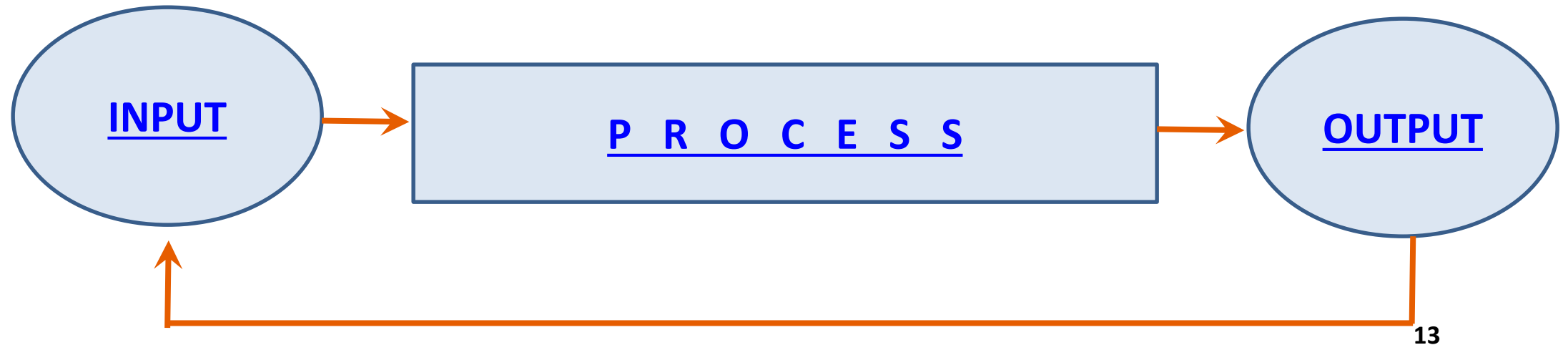
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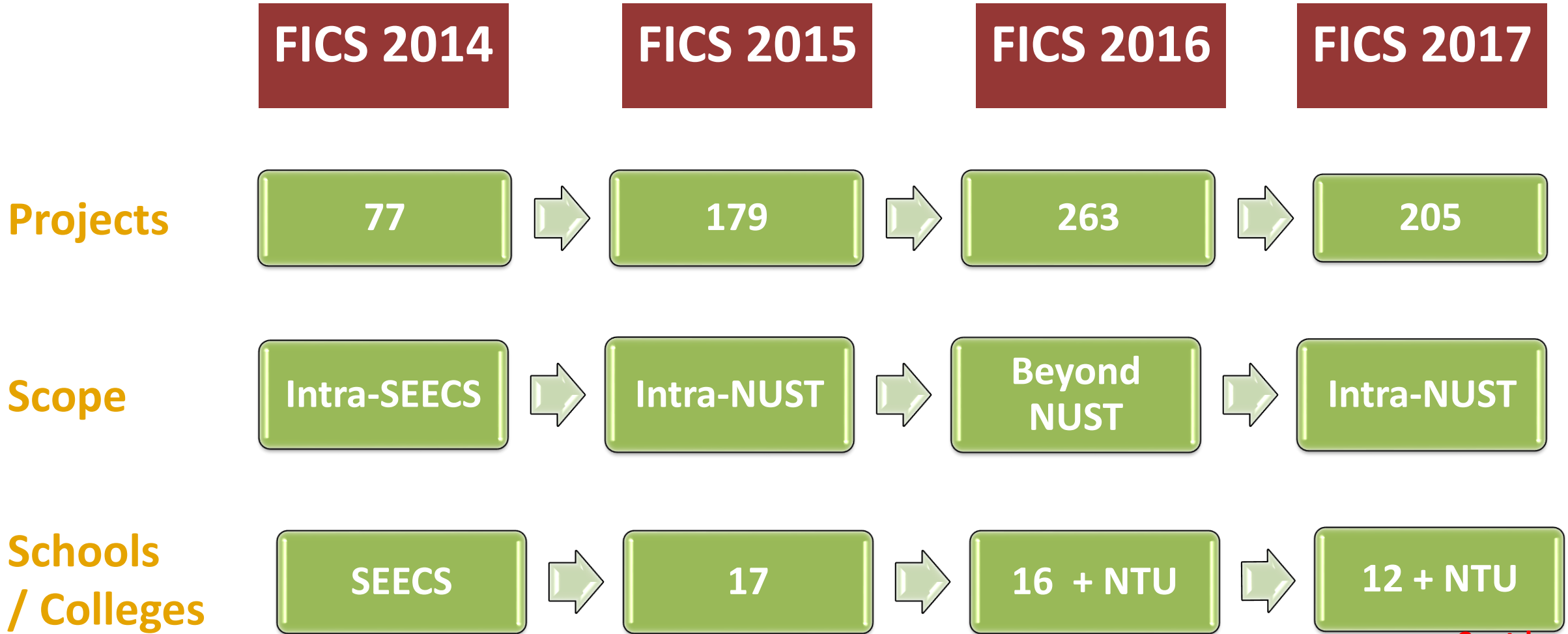
# PARTNERS FOR FICS'17



**Deployment of solutions**

**Student Start-ups**





- ▶ 205 ideas submitted from 12 NUST Schools / Colleges + NTU
- ▶ Divided into 15 domains of SDGs
- ▶ Faculty Evaluation Committees from each participants School / College shortlisted 172 projects for Stage 2 (excluding NTU)
- ▶ Shortlisted teams were asked to register again for Stage 2, along with minimum registration fee (to get commitment from teams)
- ▶ CEME conducted a pre-Stage 2 evaluation led by EME Alumni Association
  - ❖ Had 58 project presentations; alumni were judges
  - ❖ Qualified 36 teams for Stage 2
  - ❖ Also gave cash prizes for the top 4 projects of pre-Stage 2 evaluation – prizes sponsored by CAC through Industry funding
- ▶ Qualified teams for Stage 2: 138



FICS'17 IDEAS SUBMITTED FOR STAGE 1 School & Domain-wise Matrix																	
		Domain Name															
		Agriculture	Citizen Safety	Clean Water & Sanitation	Cyber Security & Efficiency	Inclusive Economic Growth & Employment	Education	Energy	Envirro-nment	Good Gover-nance	Good Health & Well-being	Gender Equality	Sustainable Cities	Process Improve-ment & Efficiency Enhanc-ement	Lifestyle & Conven-ience	Industry, Innovation & Infrastruc-ture	Total
School / College Name	SEECs & SM RIMMS	12	5	0	2	1	5	9	1	2	24	1	1	2	7	1	64
	CEME	2	7	0	0	2	5	6	1	1	25	0	0	1	8	0	58
	MCS	0	4	0	4	0	3	0	0	1	10	0	0	1	3	1	27
	SCME	1	0	1	0	0	0	5	2	0	1	0	1	1	0	3	15
	ASAB	0	0	0	0	1	0	3	2	0	9	0	1	0	0	0	16
	NICE	0	0	0	0	0	0	1	1	0	0	0	2	0	0	0	4
	IGIS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	IESE	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
	PNEC	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	6
	SMME	1	0	1	0	0	0	0	2	0	1	0	0	0	0	0	5
	NBS	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	3
	CAE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	NTU	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	2
	Total	7	17	4	6	4	13	31	10	4	72	2	6	6	18	5	205

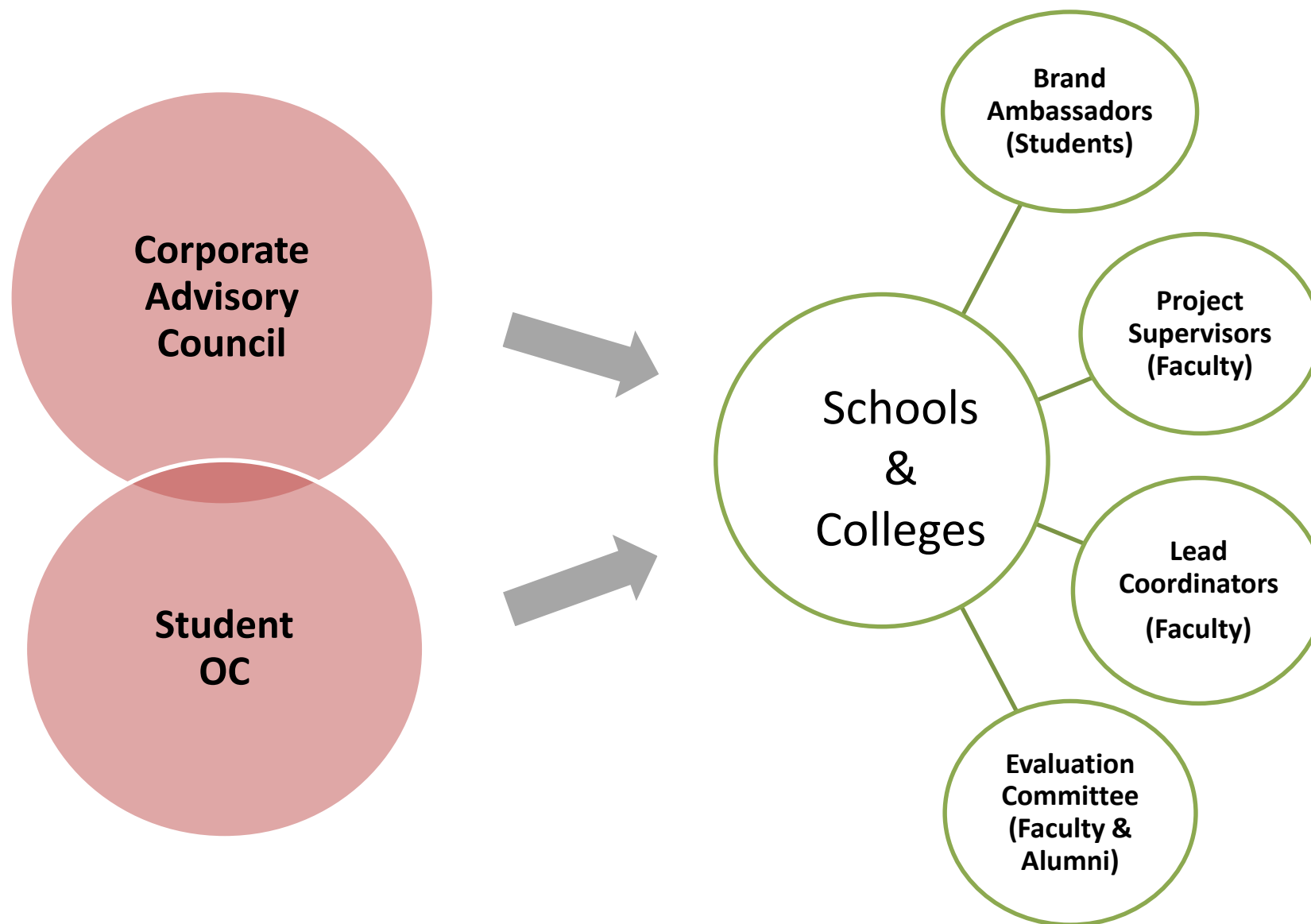
FICS'17 PROJECTS SHORTLISTED FOR STAGE 2 School & Domain-wise Matrix																	
		Domain Name															
		Agriculture	Citizen Safety	Clean Water & Sanitation	Cyber Security & Efficiency	Inclusive Economic Growth & Employment	Education	Energy	Envirro-nment	Good Gover-nance	Good Health & Well-being	Gender Equality	Sustai-nable Cities	Process Improve-ment & Efficiency Enhanc-ement	Lifestyle & Conven-ience	Industry, Innovation & Infrastruc-ture	Total
School / College Name	SEECs & SM RIMMS	3	5	0	1	1	4	4	0	1	20	1	1	2	6	1	50
	CEME	2	7	0	0	2	5	6	1	1	25	0	0	1	8	0	58
	MCS	0	4	0	4	0	3	0	0	1	10	0	0	1	3	1	27
	SCME	1	0	1	0	0	0	2	2	0	0	0	1	1	0	3	11
	ASAB	0	0	0	0	1	0	2	0	0	5	0	0	0	0	0	8
	NICE	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
	IGIS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	IESE	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
	PNEC	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	6
	SMME	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3
	NBS	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2
	CAE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	NTU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	6	16	3	5	4	12	21	5	3	62	2	5	6	17	5	172

FICS'17 PROJECTS QUALIFIED FOR STAGE 2 School & Domain-wise Matrix																	
		Domain Name															
		Agriculture	Citizen Safety	Clean Water & Sanitation	Cyber Security & Efficiency	Inclusive Economic Growth & Employment	Education	Energy	Envirro-nment	Good Gover-nance	Good Health & Well-being	Gender Equality	Sustai-nable Cities	Process Improve-ment & Efficiency Enhanc-ement	Lifestyle & Conven-ience	Industry, Innovation & Infrastruc-ture	Total
School / College Name	SEECs & SM RIMMS	3	4	0	1	1	4	4	0	1	17	1	1	2	6	1	46
	CEME	2	3	0	0	1	4	4	1	0	18	0	0	0	3	0	36
	MCS	0	3	0	4	0	3	0	0	1	8	0	0	0	3	1	23
	SCME	1	0	0	0	0	0	2	2	0	0	0	1	1	0	3	10
	ASAB	0	0	0	0	0	0	1	0	0	5	0	0	0	0	0	6
	NICE	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2
	IGIS	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1
	IESE	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	3
	PNEC	0	0	0	0	0	0	5	0	0	1	0	0	0	0	0	6
	SMME	0	0	0	0	0	0	0	2	0	1	0	0	0	0	0	3
	NBS	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1
	CAE	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	NTU	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	6	10	2	5	2	11	18	5	2	50	2	5	3	12	5	138

- ▶ Quality vs. Quantity is the focus
- ▶ Role of faculty supervisors is critical to make projects sustainable & ensure that projects are not abandoned after students graduate
  - ❖ FICS'17 has made it mandatory for student teams to have faculty supervisors
  - ❖ Greater number of FYPs have been submitted to FICS'17
- ▶ Multidisciplinary teams – inclusion of business students
  - ❖ As projects graduate from FICS & are further refined to go to Industry, their business aspect is weak
  - ❖ Working with NUST Business School (NBS) is required to play a major role - business students to be part of technical teams
  - ❖ Co-advisory of projects will help in developing comprehensive & internally consistent projects – ensuring quality of projects coming to FICS will increase chances of deployment & success
- ▶ Validation of prototype
- ▶ Participation of off-campus Colleges increasing with every passing year
- ▶ Increased involvement of NUST Alumni & Industry

- ▶ Every year, CAC holds Idea Generation Sessions where domain experts from Industry interact with students (& faculty)
- ▶ Sessions generate student & faculty interest in the program, give them an opportunity to listen to & get connected to domain experts (Energy, Healthcare, ICT, Biomedical Engineering, etc.) in order to better prepare themselves for their projects
  - ❖ 28th Nov 2016 – MCS – President NAA  
President Signalianz
  - ❖ 14th Dec 2016 – CEME – President NAA  
President EMEAA  
CEO Cricflex
  - ❖ 20th Dec 2016 – IESE, SCEE – Prof. Shamim A. Khan
  - ❖ 3rd Jan 2017 – SEECS – Former CEO USF & Country Head Siemens
  - ❖ 12th Jan 2017 – SEECS – President Alachisoft & Chairman Sabaq Foundation
  - ❖ 18th Jan 2017 – CEME – Visiting Prof at Devry University, CA  
CEO eMumba

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- ▶ Faculty supervisors & School / College Management
  - ❖ Scrutiny & evaluation of ideas before submission to FICS
  - ❖ Shortlisting of projects for Stage 2
  - ❖ Every School / College has devised mechanisms to ensure quality of project
  - ❖ CEME added an additional evaluation stage before Stage 2 to enhance the quality of projects coming to Stage 2



- ▶ Stage 2 participants given guidelines on bases to cover till Stage 2
  - ❖ Input from faculty supervisors / applied-research faculty to prepare a set of presentation guidelines
    - \* Problem identification & definition
    - \* Proposed solution & how it will address the problem & impact society
    - \* Market research (Industry analysis, competitive analysis, primary research)
    - \* Technical working of solution supported by Functional Block Diagram (FBD)
    - \* Novelty of the solution / Value Proposition / Competitive Advantage
    - \* Ease of adoption by beneficiaries
    - \* Timelines with key milestones
    - \* Estimate of cost of development
    - \* Support required from stakeholders
    - \* Future of the project & team

- ▶ Enhancing collaboration with ecosystem partners
- ▶ TiE Islamabad will conduct training & mentoring sessions with FICS'17 participants

- ❖ 2-hour seminar with Stage 2 qualified teams – 30<sup>th</sup> March 2017
- ❖ Intensive all-day workshop with Stage 3 participants – 3<sup>rd</sup> week of April 2017 – will shortlist finalists



- ▶ OPEN Islamabad will launch a mentorship program for FICS
  - ❖ To engage FICS participants with mentors at an appropriate stage of the program



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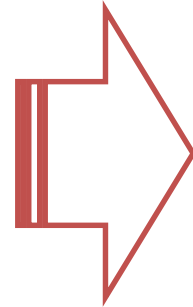
- ▶ Top 20 projects from FICS finalists selected for taking forward
  - ▶ Objective: fulfilling the KPIs
  - ▶ Enhanced engagement of external partners
    - ❖ Industry
    - ❖ OPEN, TiE, Entrepreneurs' Organization (EO), ICT R&D Fund, National Incubation Center (NIC)
    - ❖ Potential investors
- 
- ▶ More projection for the best projects – participation in national & international competitions
- 
- ▶ Startup / seed fund for FICS start-ups – presented to best FICS start-up at Grand Finale

# OUTCOMES / SOCIAL IMPACT OF FICS



FICS<sup>17</sup>  
INNOVATE FOR TOMORROW

## LITHOMATIC Winner FICS 2015



- Indigenously designed & fabricated intra-corporeal pneumatic lithotripter - a device used to treat urinary stone disease without surgical incision
- Cost-effective, safe & smart
- Deployed at Fauji Foundation Hospital (FFH)

## TREQUANT Runner-up FICS 2015



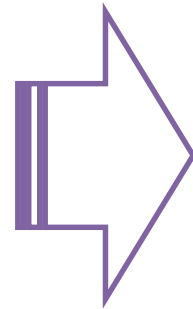
- Ergonomic wearable device for patients of Effective Tremor (ET), for better diagnosis & effective tracking of tremor in patient's activities
- Paired to smartphone or laptop
- Startup since 2014 & diversified into other products

# OUTCOMES / SOCIAL IMPACT OF FICS



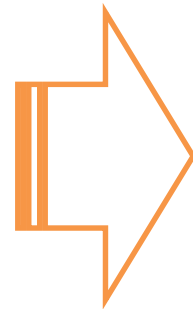
FICS<sup>17</sup>  
INNOVATE FOR TOMORROW

## CRICFLEX Finalist FICS 2015



- Wearable device for real time analysis of a bowler's action to check legality. With wireless monitoring on android application
- Pre-Incubatee at NUST Technology Incubation Center (TIC) from July 2016 to March 2017
- Moved to National Incubation Center

## CYKIQ Finalist FICS 2015



- 'Bicycle Hiring System', to help people residing in closed communities, with no economical mode of short distance traveling with 'an Automated Hiring System right across their residence'
- Pilot Project being deployed at NUST H-12 Campus
- Winner of DICE Mega Event 2016 in "Engineering, CS & IT" category
- Pre-Incubatee at NUST TIC since Dec 2016

# OUTCOMES / SOCIAL IMPACT OF FICS



FICS<sup>17</sup>  
INNOVATE FOR TOMORROW

**TAME**  
**Winner FICS 2016**

- Technology aimed at patients of ET; it seeks to normalize tremor using a novel technique called Functional Electrical Stimulation (FES), to control / normalize movements of the hands
- Start-up in the making
- First prize in Falling Walls Lab – ‘Young Innovator of the year 2016’
- Shepherd’s PIE Season 2/ Pre-Seed Star Summit 2017 – Best Startup from Pakistan

**Sionser**  
**2nd Runner-up FICS 2016**

- A portable efficient device to detect, store & transmit accurate concentrations of inorganic toxic contaminants in drinking water
- Aims to facilitate Govt. institutions to check drinking water safety before supply to masses
- Won 'Tertiary Student Project' category award at P@SHA 2016 ICT Awards
- Won ‘Merit Award’ in Tertiary Student Project category at APICTA 2016 in Taiwan
- Won ‘BITA 2016 Award’ in Dec 2016
- Won ‘Social Impact Award’ at GSEA Pakistan 2017 Finals in Jan 2017

Contd..

# OUTCOMES / SOCIAL IMPACT OF FICS



**FICS<sup>17</sup>**  
INNOVATE FOR TOMORROW



**Gleaming Glass**  
**Finalist FICS 2016**



- USPCAS-E / ASU invited research proposal related to energy, renewable energy, thermal energy engineering & electrical energy systems
- GleamingGlass has been awarded research funding of USD 30,000 from their joint applied research funding





What people  
are saying!

**Shahid Mahmud - Chairman & CEO, Interactive Group**

FICS is one of the most effective programs that a University could have to consolidate student & faculty-level R&D, align it to the UN's Sustainable Development Goals, & translate it to products and services to serve society. The best thing is that FICS is encouraging students not only to devise solutions with social impact, but also develop them into profit-making, sustainable ventures. I have been associated with NUST and CAC for many years, and have seen FICS grow from a small competition to a year-round program that has all NUST Schools on board. I wish them the best.



**Ammar Ahmad Khan**

**CEO Nexus Technologies, President NUST Alumni Association (NAA)**

NUST Alumni association has a strong belief in empowering NUST graduates through entrepreneurship . Only young minds and new thinking can hunt the opportunities hidden behind social problems. As part of our initiatives to support students at NUST , program like FICS is well aligned with our strategy . FICS has evolved in recent years and emerged as strong platform to gather talent. Awards won by FICS community speaks of its acceptance in the industry . I will urge all of you to expand FICS in all universities and make it a national asset.



**Ather Imran - CEO, Sybrid Pvt. Ltd. (a Lakson Group company)**

Nothing pleases me more than to see students using their entrepreneurial spirit and skills to solve problems that are relevant for all of us. That, in my opinion, is the primary aim of being an entrepreneur: solving problems. But there also needs to be a structured, sustainable and scalable program that lets young entrepreneurs solve problems in an effective way, with mentorship and support, including support after the program finishes to sustain these solutions. FICS, I believe has done all of that tremendously well, and with consistent improvement year on year. I, in my capacities of both CEO of Sybrid and President of OPEN Islamabad, have been privileged to be partner with the program and the brilliant team that manages it for many years now. My support, as well as of both organisations that I represent, will remain for this program, and through it for our budding social entrepreneurs.



**Mohsin Lodhi - Enterprise Trainer and Executive Development Coach**

I wholeheartedly endorse and fully support sustainable goals of FICS for the millennium which include but are not limited to: ending poverty and hunger, ensuring healthy lives, and delivering quality education to all. I have had the honor of coaching NUST students on multiple projects, e.g., clean drinking water, providing surplus food to the needy using IT, and a virtual lab for students to conduct lab experiment in a cost effective and fun way. The students who initiated and completed these projects won awards in international competitions and demonstrated their incredible talent to the rest of the world. I pray FICS and its team to succeed in its mission of making NUST and all Pakistanis proud of its efforts.



**Murtaza Zaidi**

**CEO CyberVision, Executive Director TiE Islamabad**

Innovation comes from creating environments where ideas can be nurtured and like minded people can connect. FICS is truly an exceptional program; I have witnessed young minds coming up with amazing ideas and products with the help of faculty & industry experts. I feel honored to be a part of such an exciting program!



**Mansur Khan**

**Manager NW Dev & PMO (Technical) Ufone, President Signalianz**

FICS is a great initiative and is the need of hour as it is aligned with the determination to solve the problems of society as well as achieving the Sustainable Development Goals (SDGs) laid down by UN.

During my involvement and interaction in FICS during last couple of years as a mentor, I have found it a very effective and productive project leading to solve the problems of society through technology by innovative ideas, especially in the fields of health, education, environment, water conservation and energy. In a nutshell; NUST is doing the needful from academia end, while Industry has a relevant role to play, making it successful and a win-win situation for both industry and academia. Also, it would act as a great contribution to our nation in particular and humanity in general. FICS management team deserves the due appreciation for their consistency and dedication. Best wishes!





**Iqbal Mustafa Khan - President, Alachisoft**

I'm really impressed with how FICS is fostering creative and solutions oriented thinking into students for solving real life problem. We're already seeing a noticeable number of students trying to become entrepreneurs and some becoming successful ones as well. This is great news for Pakistan and FICS deserves recognition for their leadership in this area.



**Abu Bakar Alvi**

**CEO, Radec Technologies Pvt. Ltd., President EMEnents (EME Alumni Association)**

FICS is an ideal platform for students to interact with industry and learn about the opportunities available in terms of providing creative solutions. As a nation of more than 200 million people, involvement of indigenous technology to solve common problems has been very minimal. FICS should act as a launch pad for budding entrepreneurs and problem solvers and explore great avenues of learning by working hand in hand with the industry. The aim is to produce more job providers rather than job seekers for a sustainable future of this country.





**Imtiaz Rastgar - Chairman, Rastgar Engineering Co. (Pvt.) Ltd.**

FICS is a very imaginative initiative that brings the best out of students and puts many of them on the path to self-employment and entrepreneurship. I can see it emerging as the Pakistani flagship event taking into its fold the efforts of all university ORICs and generating countrywide revolution in ideas coming to market.

**Khurram Rahat - Managing Director, Teradata**

I believe FICS is an excellent platform for students to showcase their unique ideas that have the potential to reform the community as well as fuel the growth and development of the country. It is platforms like FICS that help nurture the creativity within students and help them develop into responsible individuals. The efforts of NUST and its faculty to nurture this creativity and innovation is highly commendable. It is my privilege and honor to be associated with such a brilliant cause.

**Sayyed Ahmad Masud**

**CEO Change Mechanics, MD Channel 7 Communications Pvt. Ltd., Board member TiE Director Founder institute**

I have had the opportunity to participate in FICS since its very inception, it is a brilliant platform that lets the students imagination and knowledge rise to the challenge of building a better future for everyone.



**Muhammad Afzal Malik**

**CEO USEN, Business Head NEC Corporation Pakistan**

**General Secretary Signalianz (MCS Alumni Association)**

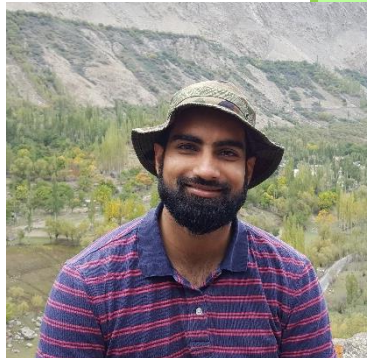
Skillful youth with positive problem solving attitude is one of the basic requirements for peaceful strong Pakistan and better future of world. It can be possible with a systematic approach for our youth, for understanding social problem, opportunity identification of technology innovation, best Idea generation techniques, series of mentorship sessions, timely guidance, continuous encouragement and engagement of all possible academic and global industrial business resources.



**Uzair Sukhera**

**CEO Ideate, Chief Evangelist NUST Alumni Entrepreneurs Network**

Technology plays a great role in solving problems of today's world, more so in a developing country like Pakistan. FICS is a good platform for students to nurture their technology ideas for solution of problems aligned with UN's SDGs, where industry and alumni provide valuable inputs to students. I will recommend students to make best use of this opportunity and help create a change!





# THE FICS'17 STUDENT ORGANIZING COMMITTEE



## EXECUTIVE COMMITTEE **FICS'17**



**UZAIR AHMED**  
PRESIDENT  
(NBS)



**AYMEN  
AZIZ**  
VP OPERATIONS  
(SADA)



**ATTIQ UR  
REHMAN**  
VP MEDIA  
(SMME)



**MAHNOOR  
MUSTABEEN**  
CHIEF MARKETING  
OFFICER  
(NBS)



**ABU BAKKAR  
EHSAN SHEIKH**  
VP RESOURCES  
(NBS)



**AHSAN  
GARDEZI**  
EDITOR IN CHIEF  
(SNS)



**HAMMAD  
SIKANDER**  
CHIEF  
CO-ORDINATING  
OFFICER  
(NBS)

# FICS'17 STUDENT OC

- ▶ Multi-disciplinary OC – encourages students from different Schools to work together
  - ❖ NBS (NUST Business School)
  - ❖ SADA (School of Arts, Design and architecture)
  - ❖ SMME (School of Mechanical & Materials Engineering)
  - ❖ SNS (School of Natural sciences)
  - ❖ SEECs (School of Electrical Engineering & Computer Sciences)
  - ❖ SCME (School of Chemicals & Materials Engineering)
  - ❖ S3H (School of social sciences & humanities)
  - ❖ SCEE (School of Civil & Environmental Engineering)
  - ❖ ASAB (Atta-ur-Rahman School of applied Biosciences)
- ▶ Student Brand Ambassadors in Colleges

## FICS'17 STUDENT OC

- ▶ Professional development of students & exposure to Industry – opportunities for placement
- ▶ Opportunity to work with NUST departments & Schools/Colleges
- ▶ Students bring in enthusiasm & energy to the project – connect well with fellow student, hence FICS gets good publicity & promotion
- ▶ CAC makes efforts to engage well with student body & keep them motivated
- ▶ FICS'17 Student OC planning to hold at social event soon after Stage 2

**Opportunity  
Recognition**

**Value Creation**

**Delivery**



**FICS**<sup>17</sup>  
INNOVATE FOR TOMORROW

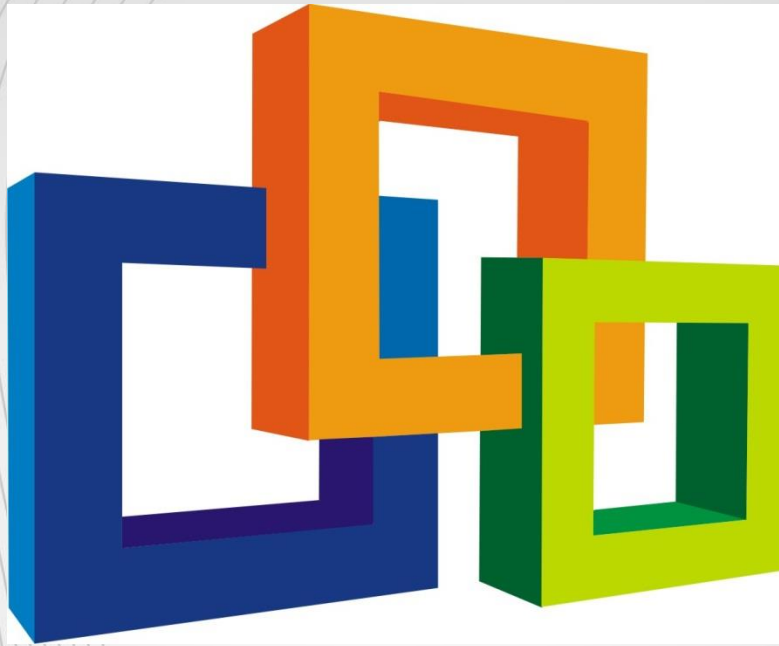
Enabling environment to  
identify & nurture  
potentially viable  
solutions

Platform to identify  
mentors & partners, and  
create business  
opportunities for  
budding entrepreneurs

Enhancing technical  
viability & sustainability  
of solutions

Deployment of solutions

Selection of mature  
projects for incubation &  
Commercialization



**THANK YOU**