

A Framework of Green & Smart IT Management for Teacher

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Abstract - University use many resources to do the education operation. But the resources are limit. So, the management of resource is the important operation to manage and control resources usage in university. In education process, Teachers are using the most resources in duties' work that defined by Ministry of Education. Teaching, Research, Academic of Service to Society and Maintain Art and Culture are the four duties of University teacher. Each duties use many resources in process, that are energy usage, money cost, tools, equipments, materials and the others. University's Boards must plan the resources management for smart working and friendly with environment. So, the Green & Smart IT Management Framework can solve the problems and assist to plan the resources management in education process by focus on teachers' duties.

Keywords - Green IT, Positive Thinking, IT Policy, 3M, IOT, KPIs

I. INTRODUCTION

Ministry of Education (Thailand) defined the duties of Teacher in University and higher institution of education for a standard of operation in education of Thailand. The duties of Teacher are: 1) Teaching, 2) Research, 3) Academic of Service to Society, and 4) Maintain Arts and Culture. The teachers must work to complete on all of the duties every semester and when end of year, The teachers and University will get evaluated the result of year operation by Assessment Department of

Ministry of Education on the result of duties' teacher. So, The University will complete the education missions, if teacher complete the duties.

For complete the duties, teacher used many resources for working in each. But in the present, resources have limited. The Boards of University must plan the resources management to reduce cost, energy, wasted and the other. Information Technology or called IT can reduce the use of resources, manage the resources in educated operation and will be the good tools for teacher. But general IT is not the best choice because IT devices are not friendly with environment. Green Technology can solve the problems.

In this research used Green IT to apply the Framework for managed plan and reduce the resources usage in duties' teacher worked. The operation will be smooth and completely that can call smart operation. Thus, we called the framework "Green & Smart IT Management".

II. THEORY AND REVIEWS

A. *Green IT*

Graem Philipson defined the framework of Green IT. The framework has 5 elements. The elements are: 1) Attitude, 2) Policy, 3) Practice, 4) Technology, and 5) Metrics. Each elements have the same units.

1. End User IT Efficiencies. That include The Desktop, Mobile Devices and Printing & Consumables

2. Enterprise IT Efficiencies. That include Data Centre IT Equipment, Data Centre Power & Environment, Communications, Distributed & Department IT Systems and Outsourced IT Systems

3. Lifecycle & Procurement. That include Procurement, Operations and Disposal

4. IT as a Low-Carbon Enabler. That include Compliance & Governance, Teleworking, Business Process Management, Supply Chain Management and Industry-Specific Efficiencies.

- Inventory lost
- Motion lost
- Waiting lost
- Over production lost
- Over process lost
- Defect lost
- None use idea from team lost

C. Douglas McGregor's XY

Douglas McGregor, an American social psychologist, proposed his famous X-Y theory in his 1960 book 'The Human Side Of Enterprise'. Theory x and theory y are still referred to commonly in the field of management and motivation, and whilst more recent studies have questioned the rigidity of the model, Mcgregor's X-Y Theory remains a valid basic principle from which to develop positive management style and techniques. McGregor's XY Theory remains central to organizational development, and to improving organizational culture.

• Theory X

Theory X considers that on the whole, workers dislike their work, and have little inherent motivation to perform well. Therefore, if organizational goals are to be met, 'Theory X' managers must rely heavily on detailed rules and instructions, on close monitoring, and on the threat of punishment to gain employee compliance. When practiced, this theory can lead to mistrust, highly restrictive supervision and a punitive atmosphere. The 'Theory X' manager believes that all actions should be traced and the responsible individual given a direct reward or a reprimand according to the action's outcomes. This managerial style is more effective when used to motivate a workforce that is not inherently motivated to perform. It is usually exercised in professions where promotion is infrequent, unlikely or even impossible and where workers perform repetitive tasks. A flaw of this management style is that it limits the employee's potential and discourages creative thinking. Show on fig. 2.

A Green IT Framework

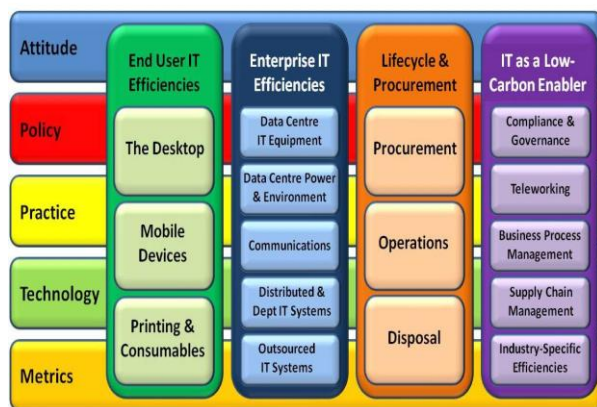


Fig 1. Graem Philipson Framework

B. 3M

3M are the three Japanese words that the first alphabet of word is "M" when write in Romanji. 3M are Muri, Mura and Muda. 3M are the important unit in Lean Management. 3M mean something to be eliminated for reduce the problem in operation.

1. Muri is overburden. The overburden is not good practice for work, even in the initial will get more benefit that cause have many work hours. But in time pass, the human be tired. The work will error. So, it will be the loop of many do many error.

2. Mura is unevenness. The unevenness will be the hard of work. Finally will be error.

3. Muda is waste . The 8 waste are:

- Transportation lost

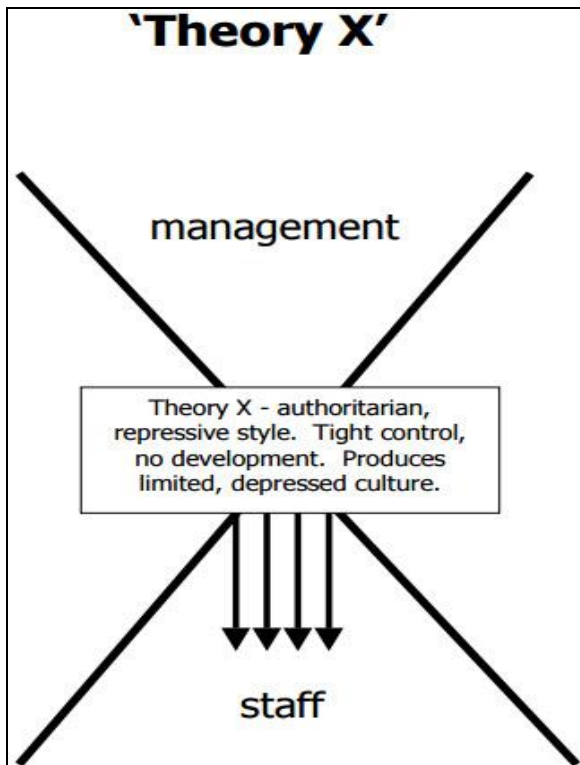


Fig 2. Theory X

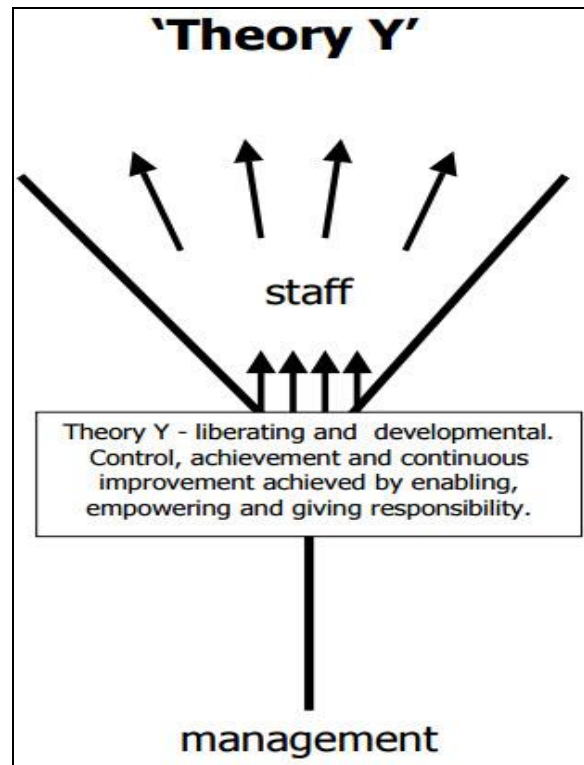


Fig 3. Theory Y

• **Theory Y**

Theory Y, in contrast, is based on the belief that, given appropriate working conditions, most people perform well. The worker is considered as the most important asset of the company. It is believed that workers can derive satisfaction from their physical and mental work, viewing it as a game or as something to be enjoyed. Workers can take responsibility and can solve problems in a creative way, so that they do not need to be shadowed constantly; workers will commit to objectives in proportion to the satisfaction they get from achieving them. Thus, Theory Y managers consider that to achieve the objectives of the company, they must treat each worker as a mature and responsible individual, and adopt a style of participatory, democratic leadership, based on self-direction and self-control and requiring little external control. Show on fig. 3.

Douglas McGregor's XY-Theory is the based concept for develop Positive Thinking's concept.

D. Positive Thinking

Positive Thinking look on the failure is the other choice that cannot go to win. But, It is experience in work. So everything that failure on work are not the bad thing only. But they are the histories, experience and the guides for warning to do the work carefully more than the passed. The Concept of Positive Thinking are:

1. We can do! Do not think negative.
2. Imagination for Inspiration
3. Think Win.
4. Think Reasonable

III. FRAMEWORK

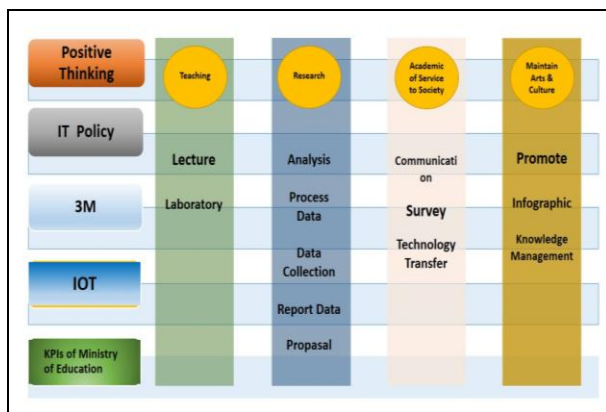


Fig 4. Green & Smart IT Management Framework

A framework of Green IT Management on figure4 has 5 elements that cover all duties' teacher of University.

1. Teaching
2. Research
3. Academic of Service to Society
4. Maintain Art and Culture

A. Positive Thinking

Positive Thinking is the guideline for increase the good attitude of work.

1. Teaching, Teacher must think in positive about his students in classroom. Reduce the negative thinking from his mind. The relation between of teachers and students will be good feeling. The Education will be complete with happiness in teaching and learning.

2. Research, In research must have a lot of problems or obstacle from people, equipment, tool, communication, budget or the other even researcher. Positive Thinking will reduce the bad mood form heart and reset the mind to go forward.

3. Academic Service to Society, Maybe in the projects for services will meet the angry, hothead people or gangsters to disturb your work. If you are angry too, your work will failure. But, if you have Positive Thinking, and you pardon them, your work will complete.

4. Maintain Arts and Culture, In any Country have the secret arts and culture that

not so good for the civilized human. You must have Positive Thinking for understanding in their cultures.

B. IT Policy

IT Policy is the security for safe resources of university from lost, thief or checked.

1. Teaching, Teacher can manage and control resources usage by set the rule for safety. Example: Checked All of Electrical Devices before and after teach or work in Lab. or Classroom, Use GPS or RFID on any devices for track.

2. Research, same as Teaching. But, add the policy for verify users who come or work in Research Laboratories.

3. Academic Service to Society, IT Policy used the protocol for verification, detection and filter the communication of Society from the outside of university. And used for selected safety zone of society for service.

4. Maintain Arts and Culture, Policy for manage is same as Academic Service to Society. But main objectives are protection the pirate of arts, copies and damage from people.

C. 3M

3M reduce the 8 wasted for education operation.

1. Teaching, Teacher reduce the out of scope in topics learning.

2. Research, filter the data for collected, reduced the research process that unnecessary, reduce wasted.

3. Academic Service to Society, Reduced duplicate zone of society the operation

4. Maintain Arts and Culture, Decrease bias from stakeholders.

D. IOT

IOT or Internet of Things is the new technology for control any devices used by internet with the concept of machine to machine communication and automatic.

1. Teaching, IOT control about resources usage in classroom and manage the energy fit for users in Classroom or Laboratory with Simulation and Virtual Reality Classroom. Called Green & Smart Classroom.

2. Research, same as Teaching. But, main objective is allocate and manage the resources for each research projects in Laboratories. And reduce cost of equipment, tool, and material with Simulation Application. Called Green & Smart Laboratory.

3. Academic Service to Society, Use IOT on data center for stored data, information and knowledge. IOT Data Center will be the center of Knowledge Management for used to service. Other than stored and manage, IOT Data Center reduce the cost, resources, energy and wasted. Called Green & Smart Society.

4. Maintain Arts and Culture, Used IOT for stored data, image processing about Arts and Culture to check the accuracy of Arts or Culture. Called Green & Smart Arts.

E. KPIs of Ministry of Education

KPIs for Education have been defined by Ministry of Education (Thailand). In Thailand, have many the assessment offices in Education. However The University and teachers are under Office of the Higher of Education Commission. But, In anytime The KPIs will change factors for assessment. So, that is the problem for KPIs element in framework.

1. Teaching, Teacher must complete on standard of KPIs from University and Office of the Higher of Education Commission.

2. Research, Must correct in research Methodology.

3. Academic Service to Society, Projects for service to society can prove helpful any society and necessary.

4. Maintain Arts and Culture, Make sure after maintain arts and culture. Everything do not distortion or damage.

IV. CONCLUSIONS

The result obtained from the research is Framework of Green & Smart IT Management has 5 elements: 1) Positive Thinking, 2) IT Policy, 3) 3M, 4) IOT, and 5) KPIs.

In each elements have covered in 4 duties' teacher of university in Thailand. The duties are: 1) Teaching, 2) Research, 3) Academic to Society, and 4) Maintain Arts and Culture.

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