A presentation for GEOBIM Conference
Dubai, U.A.E – 16-17 August 2015

Is BIM on the Region's Higher Education Road Map?

Presented By:
Dr. Assem Al-Hajj
Heriot-Watt University

BIM in Higher Education

UK	UAE
MSc Programmes in 14 universities	No programmes
Individual BIM Courses	Some courses available
BIM Initiatives	BIM awareness events
Professional Institutions leadership	Industry support

Construction Industry Performance/Problems

- Lack of satisfaction
- Low profitability
- Lack of performance
- ‘Cowboy’ builders
- Industry dominated by the old craft culture
- Fragmented and adversarial
- Lack of innovation and development
- Lack of construction strategy: Is the industry ready for BIM

Why BIM?

- A new technology? A piece of software?
- A design Process, A construction process, An FM process
- An entire lifecycle process: n-D modelling
- A process that provides a collaborative framework amongst all project parties
- An integration process
- A method of sharing data

"A shared knowledge resource for information about a facility forming a reliable basis for decisions during its life circles'

" A digital representation of physical and functional characteristics of a facility"

(http://www.revitmodelingindia.com/wp-content/uploads/2014/07/2.png)

- A change of the mindset or just A MANDATE
- *Potentially the future of the construction industry!!!*

BIM:


i got it! data exchange and collaboration are actually the same thing...
X is the same as Y
CAD = BIM
BIM = REVIT
BIMwash Level 1
CONFUSION


Process & Workshop
Technology
Management & Organisation


BIMwash
MISREPRESENTATION
DECEPTION
BIMwash Level 4, ILLUSION, © ChangeAgents AEC, 2011

The Mandate

- **2013 Circular 176**: Dubai's mandate/dictate BIM for architectural and MEP works for
  - Buildings 40 stories or higher
  - Facilities/buildings that are 300,000 sqft or larger
  - Hospitals, universities and other similarly specialized buildings
  - All buildings that are being delivered by/through an international party

- **2015 Circular 265**: Dubai's mandate/dictate BIM for architectural and MEP works for
  - Buildings 20 stories or higher
  - Facilities/buildings that are 200,000 sqft or larger
  - Hospitals, universities and other similarly specialized buildings
  - All buildings that are being delivered by/through an international party
  - All governmental buildings

GOVERNMENT OF DUBAI

DUBAI MUNICIPALITY

Ref: 812/02/02/1/1314482 18/11/2013

تعميم إلى جميع المكاتب الاستشارية وشركات المقاولات العاملة في إمارة دبي

تعميم رقم (196)

بشأن تطبيق نموذج ال (Building Information Modeling – BIM)

انسجاماً مع جهود بلدية دبي للارتقاء بمستوى الخدمات من خلال تطوير الأنظمة والقوانين لمواكبة أرقى المعايير العالمية، والاستغلال الأمثل للتقنيات الحديثة، ومماشيةً صناعة البناء من تطور في مجالات التخطيط والتصميم والتنفيذ والتشغيل والادارة وصولاً الى مرحلة الهدم، والتقدم الهائل في البرامج الالكترونية المتخصصة في مجال انتاج وضبط وتنظيم العمل الهندسي، والنجاح الذي حققه تطبيق نموذج (Building Information Modeling – BIM) وامكانياته التي تمكن من تطوير أدوات ووسائل انتاج المبنى بطريقة تضمن تحسين مستوى الجودة والتنظيم والتواصل بين العاملين في كافة مراحل المشروع بالاضافة لتخفيض الوقت والكلفة وتوحيد المواصفات والمعايير الهندسية المطبقة وتسهيل اعداد جداول الكميات والبرامج المالية بدرجة عالية من الدقة، فقد تقرر تطبيق نموذج ال (BIM) للأعمال المعمارية والالكتروميكانيك (MEP) كمرحلة أولى على:

1- المباني التي يزيد ارتفاعها عن (40) طابق

2- المباني التي تزيد مساحتها عن (300 ألف قدم مربع).

3- المباني التخصصية كالمستشفيات والجامعات ومافي حكمها.

4- كافة المباني المقدمة عن طريق فرع مكتب أجنبي.

وذلك ابتداءاً من تاريخ 2014/1/1 ، على أن تكون المكاتب الاستشارية مسئولة قانوناً عن عملية التطبيق

آملين من الجميع التعاون لما فيه المصلحة العامة

خالد محمد صالح

مدير إدارة المباني

DUBAI MUNICIPALITY

يمكنكم الاطلاع على كافة التعاميم على الموقع الإلكتروني لبلدية دبي www.dm.gov.ae – الصفحة الرئيسية – اصحاب البلدية – التخطيط والبناء – تعاميم البناء

EXPO 2020 إكسبو

ص.ب: 67 دبي، إ.ع.م. هاتف: 5555 221 4 971+، فاكس 6666 224 4 971+

P.O.Box : 67 DUBAI, U.A.E. Tel.: +971 4 221 5555, Fax: +971 4 224 6666

E-mail: info@dm.gov.ae, Website: www.dm.gov.ae

Our Vision : Creating an excellent city that provides the essence of success and comfort of sustainable living

Why BIM: Mandate

- Two UK academics, Prof Nashwan Dawood and Dr Mohamad Kassem from Teesside University, have been awarded a grant of $940,000 to carry out a research on *"a whole life cycle information flow approach enabled by BIM protocols and technologies"* for Qatar's construction industry.

"This Government's four year strategy for BIM implementation will change the dynamics and behaviours of the construction supply chain, unlocking new, more efficient and collaborative ways of working. This whole sector adoption of BIM will put us at the vanguard of a new digital construction era and position the UK to become the world leaders in BIM."

Francis Maude
Minister for the Cabinet Office

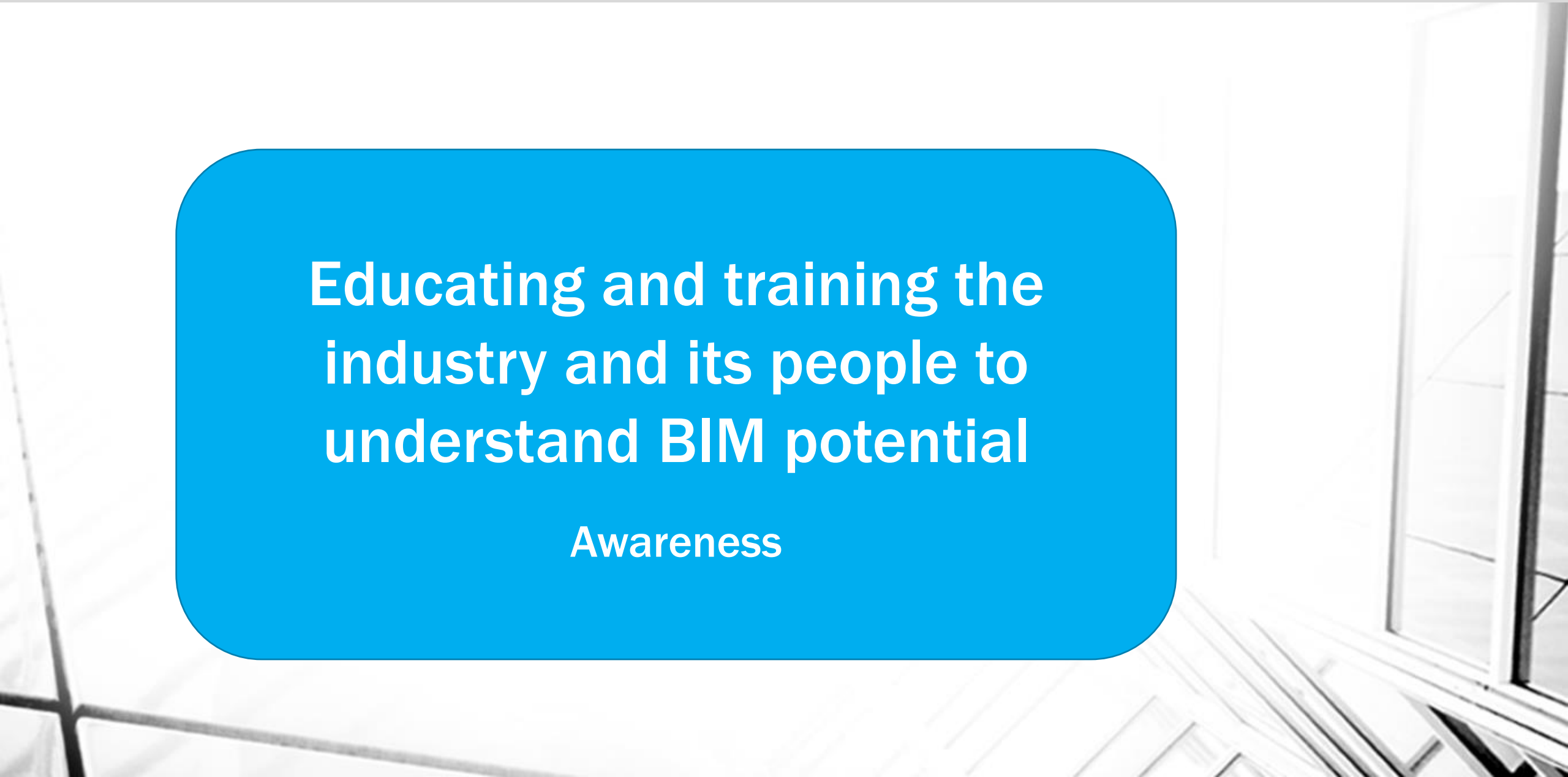
BIM: Challenges and Barriers

Eastman (2008) and Arayici (2009) and Nawar (2014)

The need of industry culture change

Changing the mindset of the construction professionals and overcoming their resistance to change

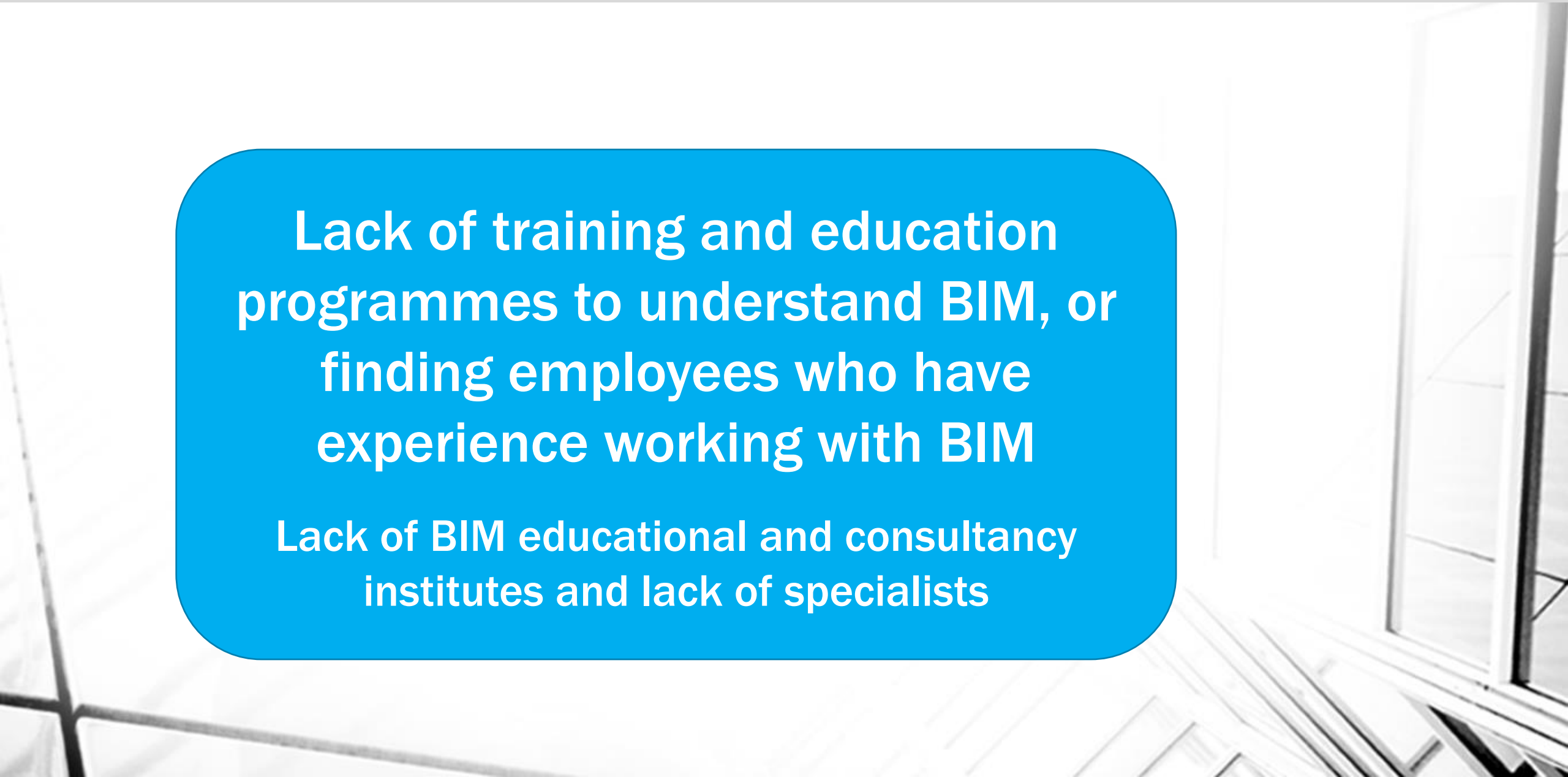
BIM: Challenges and Barriers



Educating and training the industry and its people to understand BIM potential

Awareness

BIM: Challenges and Barriers



Lack of training and education programmes to understand BIM, or finding employees who have experience working with BIM

Lack of BIM educational and consultancy institutes and lack of specialists

BIM: Challenges and Barriers

Lack of understanding the economic and financial impacts in terms of investment required for implementation of BIM

BIM: Challenges and Barriers

Realising that it is a new technology it is important that existing workflows be adapted for BIM, which will in turn allow mapping with existing process such as lean, green building etc.

BIM: Challenges and Barriers

BIM works efficiently on a collaboration platform, it is therefore important that interoperability be built and developed between the designers, engineers and building services engineers and other moving parts within the project and industry

Information sharing
Treating BIM as mandatory requirement

Conclusion

- Need for industry strategy to drive performance improvement using BIM
- Higher Education must work hand in hand with the industry to develop needed skills for the BIM to allow this to be the future of the industry.
- Researchers and practitioners should work together to overcome the present challenges faced by the industry in relation to BIM implementation.

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Notable Studies

1944	The Simon Report	The Placing and management of contracts
1950	The Philips Report	The ministry of works party report on building
1962	The Emmerson Report	Survey of problems before the construction industry
1964	The Banwell Report	The placing and management of contracts for building and civil engineering work
1965	Tavistock Institute	Communications in the **B**uilding Industry
1966	Tavistock Institute	Interdependence and uncertainty
1975	The Wood Report	The public client and the Construction Industry
1983	NEDO	Faster building for industry
1988	NEDO	Faster building for commerce
1994	**The Latham Report**	**Constructing the Team**
1995	Office of Science and Technology	Technology Foresight- Process through Partnership
1995	The Levene Report	Construction Procurement by Government
1998	**The Egan Report**	**Rethinking Construction**
1999	**Office Government Commerce**	**Achieving Excellence**
2001	**National Audit Office**	**Modernising Construction**
2002	**The Strategic Forum for Construction**	**Rethinking Construction- Accelerating Change**
2003	**Office Government Commerce**	**Building on Success- Achieving Excellence**
2011	**Cabinet Office**	**Government Construction Strategy**