

Global Experiences, Value and Perspectives from Digital Construction and Smart City Development

数字建造和智慧城市建设的全球经验分享、 价值与展望

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“BIM技术在设计、施工及房地产企业协同工作中的应用” 国际技术交流会

第一届: 2010

第四届: 2016

第五届: 2018

第六届: 2019



甘博士参加第四届交流会

来源: <http://www.bimunion.org/html/2016-11/464.html> | <http://tmjzgcxjs.manuscripts.cn/conference/DWJBIMJSZSJSGJFDCQYXTGZZDYYGJHYTZYH/index.htm>

- Promises vs. Reality
- 承诺 vs. 现实
- Values of Automation and Industrialization
- 自动化和工业化的价值
- Performance Measures, Indicators, and Benchmarks
- 绩效衡量，指标，基准比较
- Drivers for Innovation - 5-Tier Maturity
- 创新驱动动力 – 5大层级的成熟度划分
- Global + China-Focused BIM+ Professional Education
- 着眼全球+中国市场的BIM+ 专业教育

Asia-Pacific Economic Cooperation (APEC) 亚太经合组织



The APEC region accounts for **60%** of the global GDP.

(Source: <https://www.apec.org/Publications/2017/11/APEC-in-Charts-2017>)



建筑信息模型(BIM)

APEC & ASEAN in Indonesia 2013



绿色建筑及衡量指标

APEC in Beijing 2014



智慧城市

APEC Smart City Workshop 2017

APEC高级长官会议 SOM3 智慧城市工作坊, 2017年8月



Tin tức

- Trẻ bị giật cơ mắt, nấc cụt, nhún vai không kiểm soát vì 'nghiện' điện thoại di động
- Doanh nhân nên tránh trách nhiệm người dùng



 THỜI SỰ KHOA HỌC - CÔNG NGHỆ TIÊU CHUẨN CHẤT LƯỢNG CẢNH BÁO KINH DOANH NĂNG SUẤT CH

VIDEO HOT

APEC chia sẻ kinh nghiệm về xây dựng thành phố thông minh

16:02 21/08/2017

  Tweet  Thích 1

HOT Những điều kiêng kỵ trong 'tháng cô hồn' để được bình an, tránh xui xẻo

HOT Đường nhập lậu 9.300 hộp thuốc giả của công ty Pharma

Vietq.vn - Trong khuôn khổ Hội nghị SOM 3 APEC đã diễn ra tại TP.HCM, sáng nay (18/8), Hội thảo chia sẻ kinh nghiệm trong việc thực hiện các tiêu chuẩn và quy trình đánh giá sự phù hợp về đô thị thông minh trong khu vực APEC. Đây là hội thảo nhận được sự quan tâm nhất của các đại biểu cũng như công chúng.



The video from VTV.vn has also been released on other Vietnam web pages

Source: <http://vietq.vn/apec-chia-se-kinh-nghiem-ve-xay-dung-thanh-pho-thong-minh-video127777.html>

内蒙古(和林格尔新区)首届智慧产业峰会，2018年1月





Start-Up Guide
Building Information Modeling

Subcommittee on Standards and Conformance

December 2013

2014 APEC BIM
启动指南

Where is your economy on the BIM adoption timeline?

STATUS QUO	PILOTING	POLICY	INDUSTRY	INNOVATION
⇒ Minimal BIM adoption, no government policies or support	⇒ Exploring value and implications of implementation for the economy	⇒ Developing support, incentives, and requirements for BIM by Government or Industry Leaders	⇒ Wide adoption of BIM and ready to spread best practices and benefits	⇒ Leading development of new capabilities and extending the value of BIM

TOP ACTIONS AT EACH STAGE OF BIM ADOPTION

STATUS QUO	PILOTING	POLICY	INDUSTRY	INNOVATION
⇒ Benchmark current productivity to other economies ⇒ Compare the cost of BIM enablement to the cost of maintaining status quo	⇒ Invest in case studies and pilot projects ⇒ Align pilot project targets to strategic goals ⇒ Assess each approach and benefit	⇒ Formalize realistic and enforceable policies at agency and economy-wide levels ⇒ Support repeatable and measurable gains	⇒ Harmonize leadership and grassroots efforts ⇒ Encourage with support, rewards, and mandates ⇒ Identify and adopt BIM standards and technologies	⇒ Consider both evolutionary and revolutionary transformation ⇒ Establish global strategic partnerships

台前

“我们的项目获得了多项BIM大奖”

“BIM在项目初期就已投入使用”

“我们已在打造前沿的智慧社区...”

“..我们已建立了自己的智慧
管理平台...”

“BIM在各阶段实现深入应用”

模型里的信息太多了，操作缓慢！

因为要进行BIM培训，花费的时间
更多了！

技术的开发需要更多数据的支持..

平台涵盖的内容过于宽泛...

智慧城市的发展是否会造成网络安全
隐患？

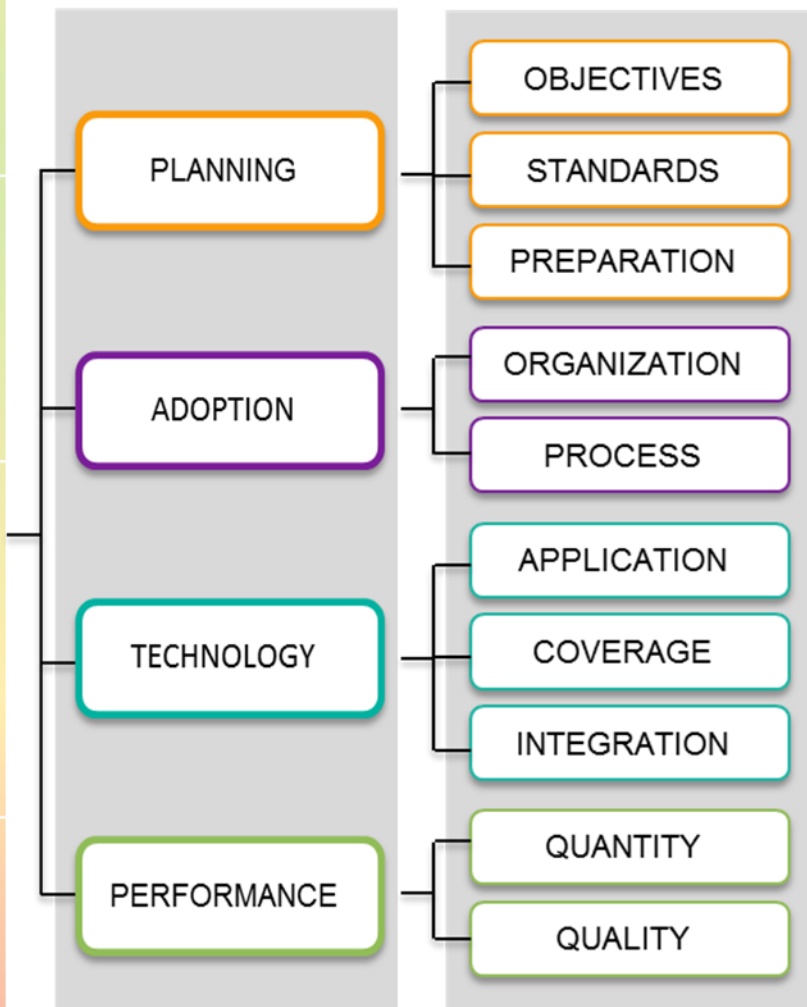
幕后



Scorecard Framework

4大领域

10个分项

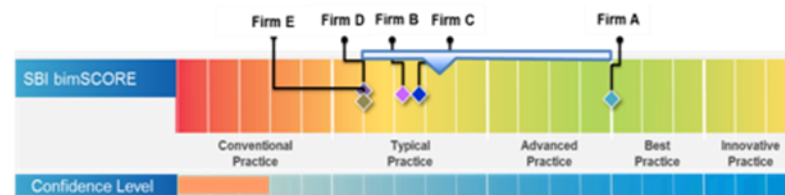


Asia-Pacific
Economic Cooperation

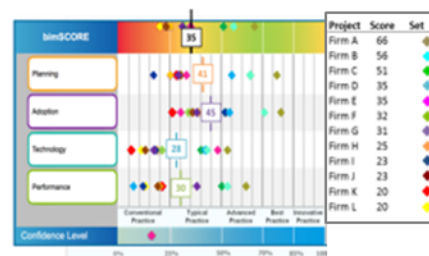
21个经济体

DODGE DATA & ANALYTICS

8个国家



逾数十项的企业流程评估
特定区域的基准比较和评估



逾百项项目评估
收录全球数据库



Overall

Planning

Adoption

Technology

Performance



Conventional Typical Advance Best Innovative



Industrial Strategy: government and industry in partnership



Construction 2025

July 2015



EXECUTIVE SUMMARY | CONSTRUCTION 2

Lower costs

33%

reduction in the initial cost of construction and the whole life cost of built assets

Faster delivery

50%

reduction in the overall time, from inception to completion, for newbuild and refurbished assets

Lower emissions

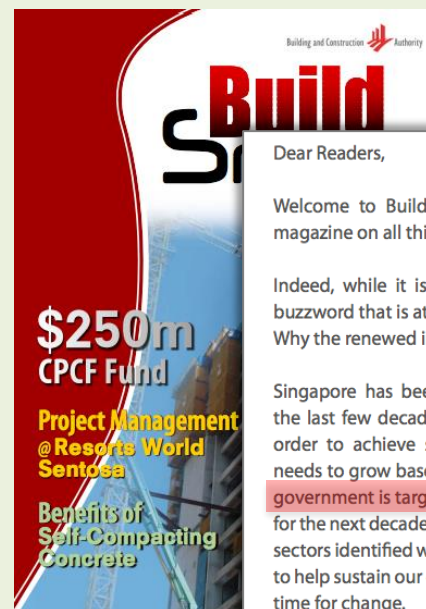
50%

reduction in greenhouse gas emissions in the built environment

Improvement in exports

50%

reduction in the trade gap between total exports and total imports for construction products and materials



Dear Readers,

Welcome to Build Smart, the first issue of BCA's dedicated magazine on all things relating to construction productivity.

Indeed, while it is not a new idea, "productivity" is the new buzzword that is at the top of our economic agenda these days. Why the renewed interest?

Singapore has been experiencing good economic growth in the last few decades, largely based on manpower capacity. In order to achieve sustained and inclusive growth, Singapore needs to grow based on skills, innovation and productivity. The government is targeting 2% to 3% productivity growth per year for the next decade. The construction sector is among the twelve sectors identified with productivity-based growth opportunities to help sustain our economy. Hence, this presents an opportune time for change.

\$250m
CPCF Fund

Project Management
@ Resorts World
Sentosa

Benefits of
Self-Compacting
Concrete

Message



dedicated
ivity.

the new
ese days.

rowth in
acity. In
ngapore
vity. The
per year

your productivity journey. The Centre will also guide you capitalising on schemes that would aid your business process.

To further help our construction firms in building up their capability, we have conceived this new magazine to showcase leading firms, best practices and the latest technology that can be adopted to boost productivity along the whole construction value chain. 'Build Smart' aims to help everyone in the development and construction industry to achieve improvement. In this inaugural issue, we will focus on the following areas:

Source: BCA

In 2002



总理签署京都议定书

- Target 目标:
6% total reduction of GHG emission by 2012
compared to 1990
到2012年比1990年减少6%的温室气体排放

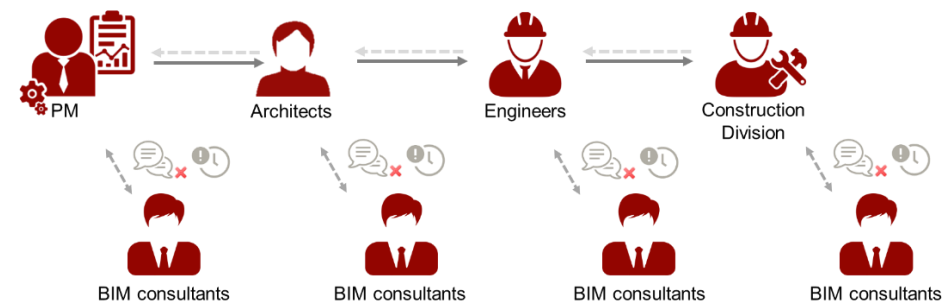
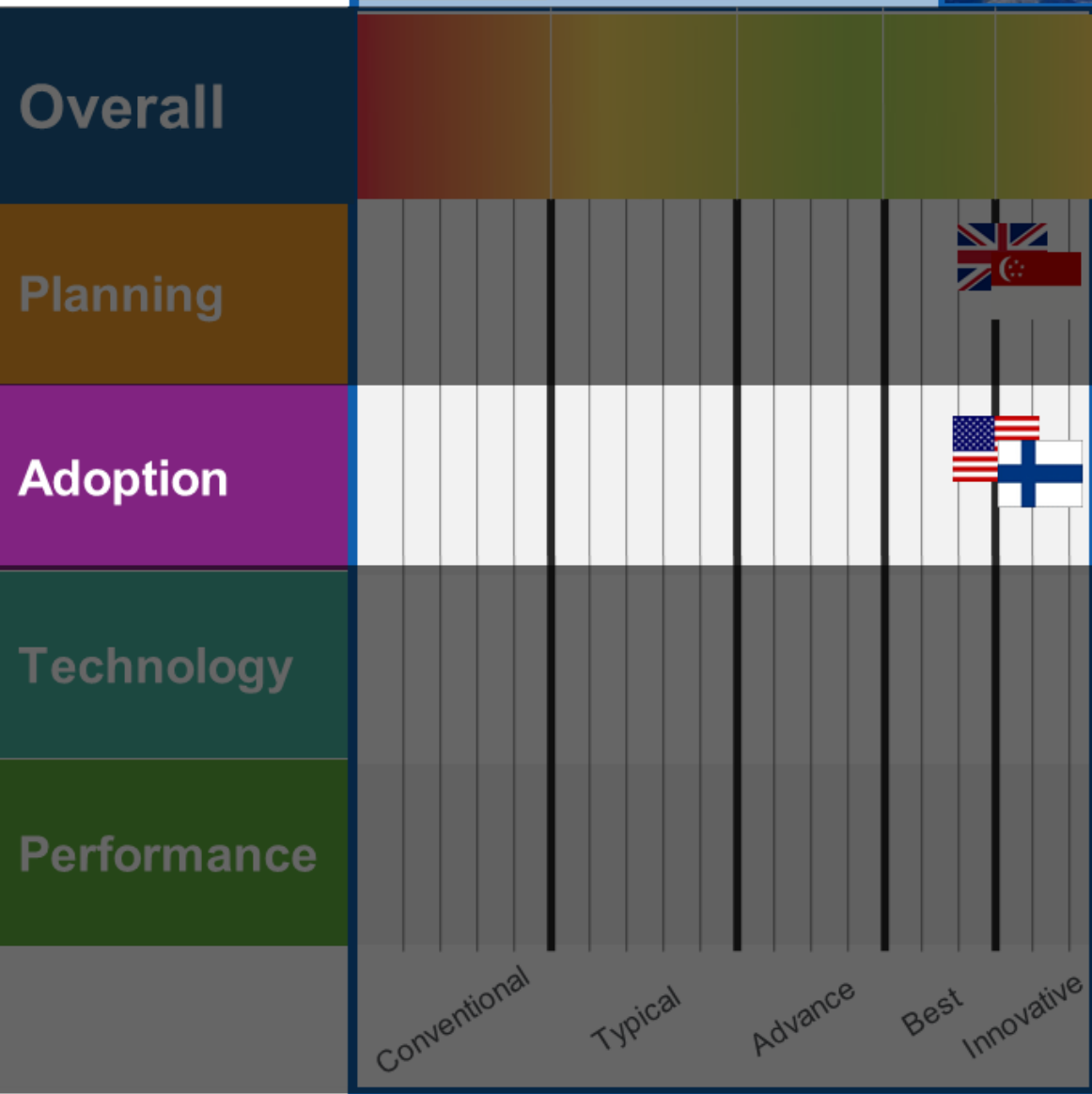
In 2011



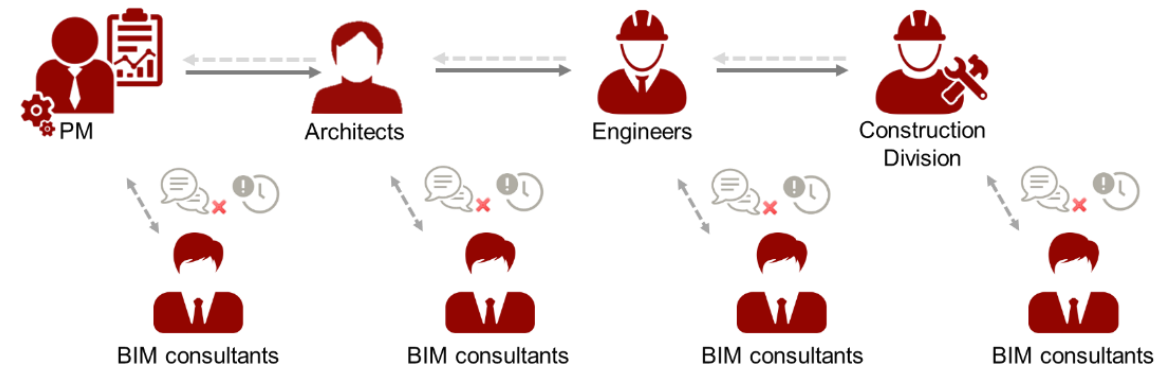
CBCnews

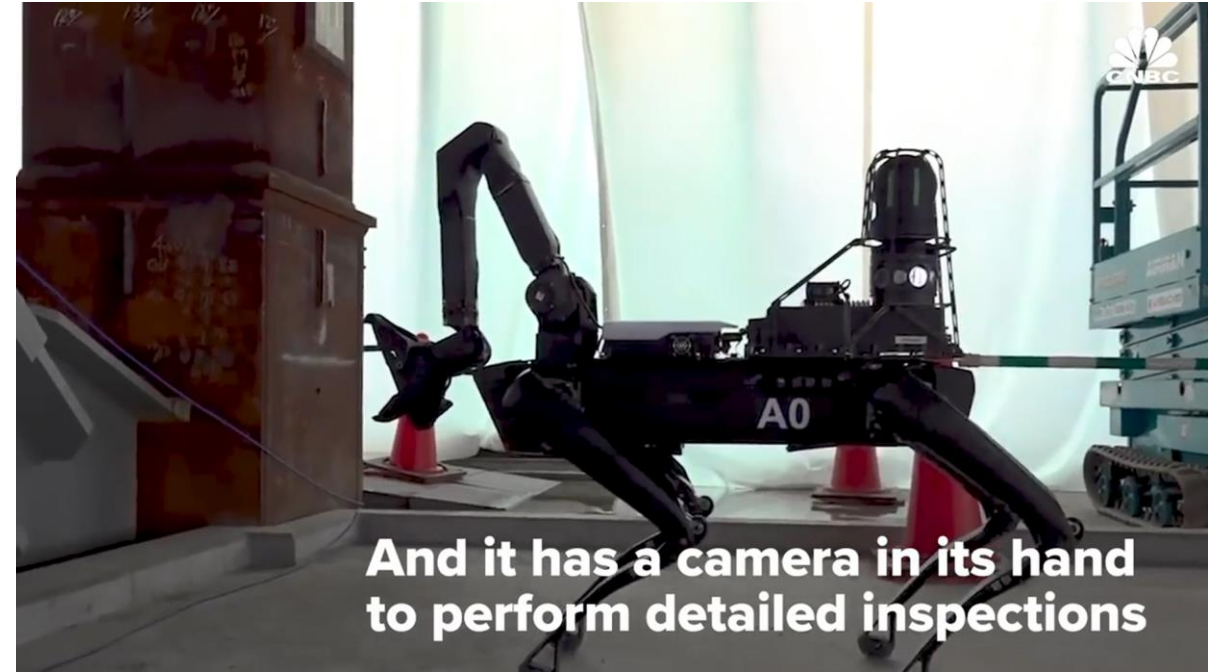
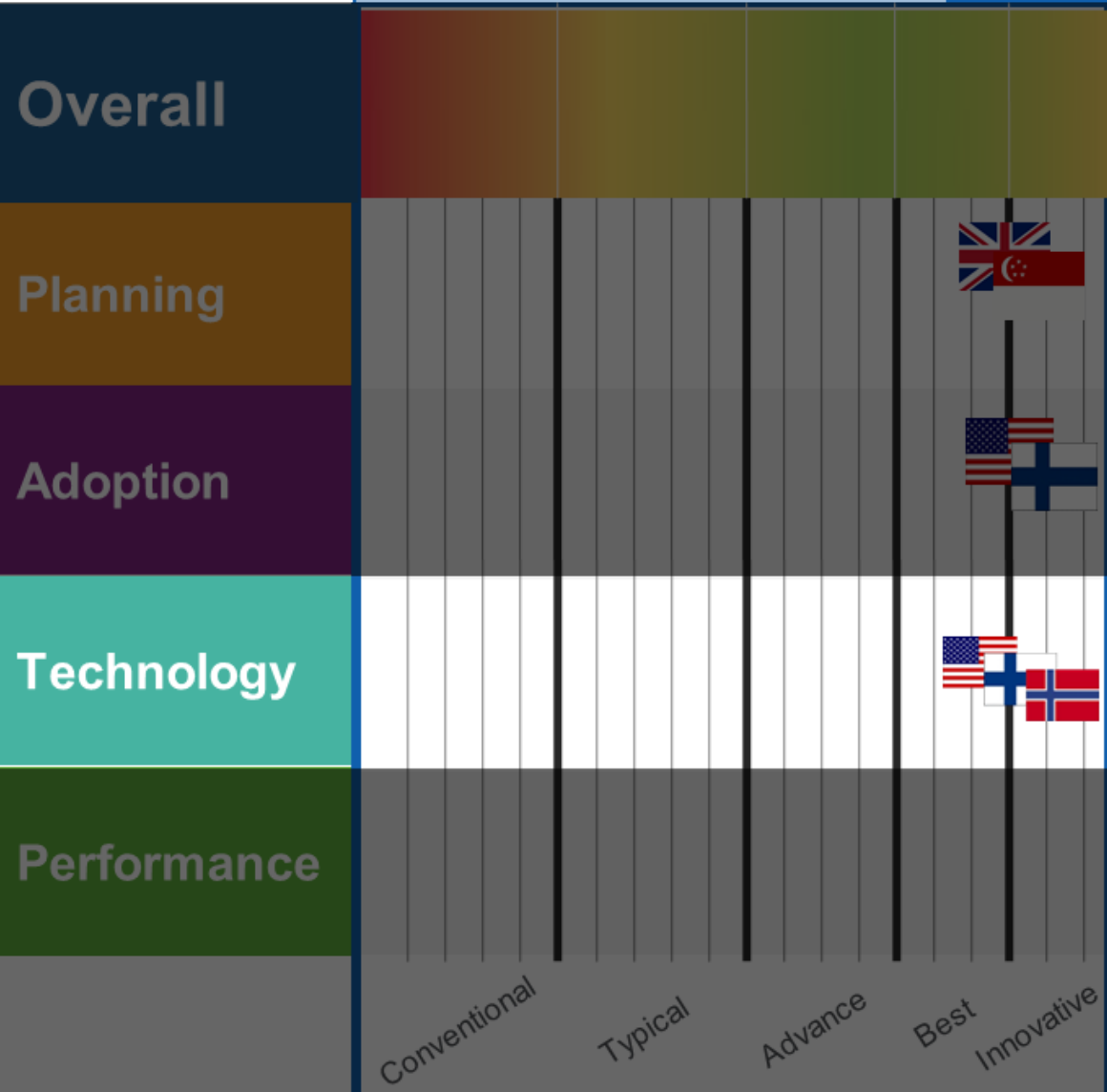
撤出京都议定书

- Reality 现实:
Around 24.1% increase of GHG emission
in 2008 compared to 1990
2008年时，已比1990年增加了约24.1%的温室气体排放



智慧城市的探索，是负担，还是创新？





A black quadruped robot, labeled "A0", is shown in a laboratory setting. It has a long, articulated arm extended upwards, holding a camera. The robot is positioned on a light-colored floor with red traffic cones nearby. In the background, there are large windows and industrial equipment. The text "And it has a camera in its hand to perform detailed inspections" is overlaid in white at the bottom of the image.

**And it has a camera in its hand
to perform detailed inspections**





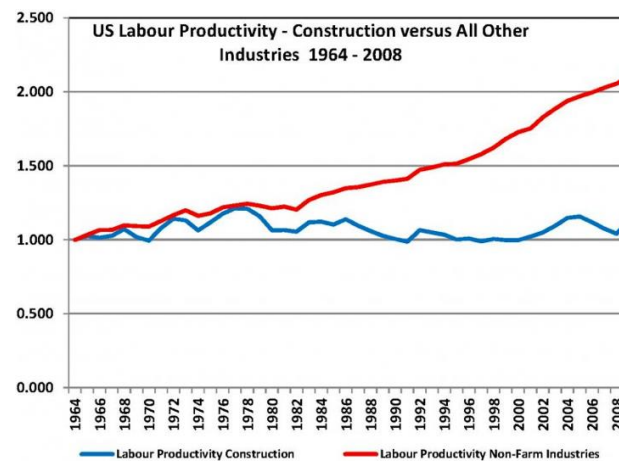
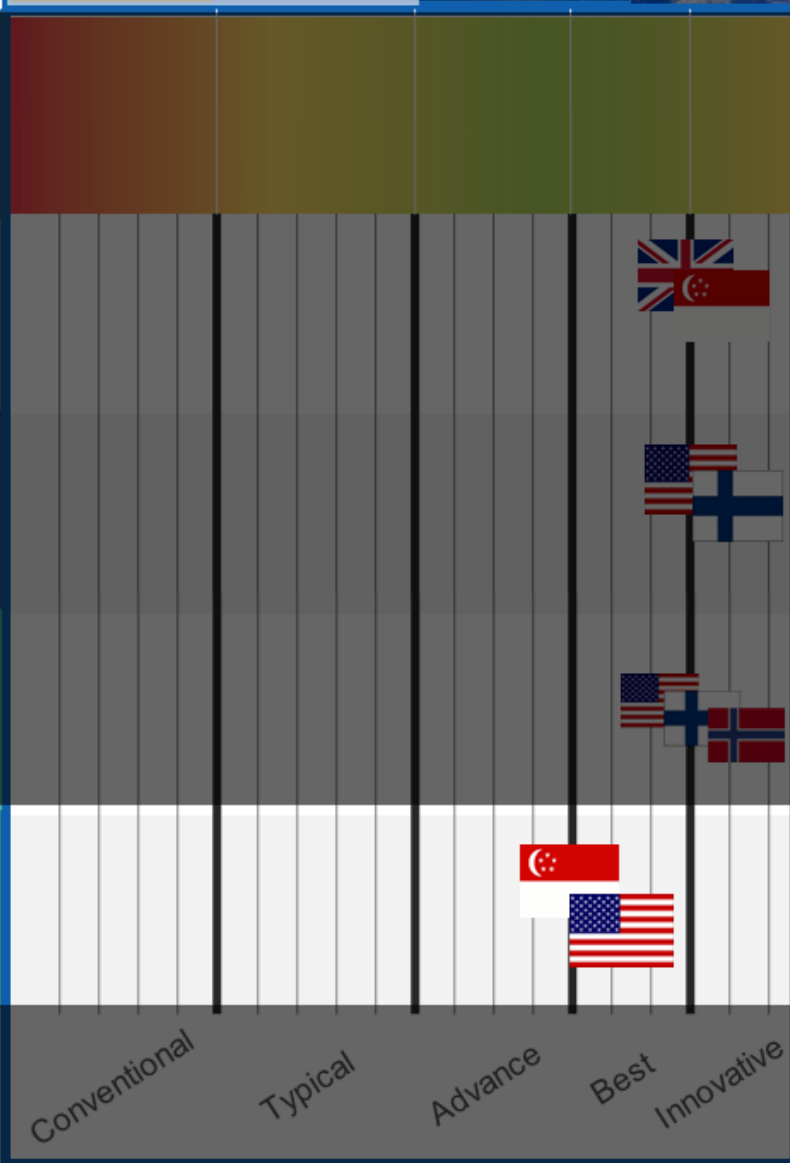
Overall

Planning

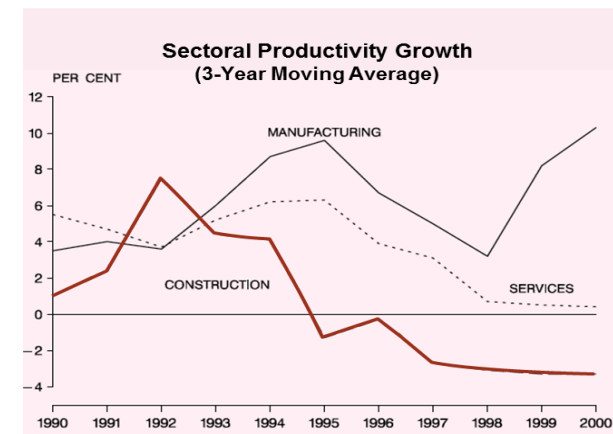
Adoption

Technology

Performance



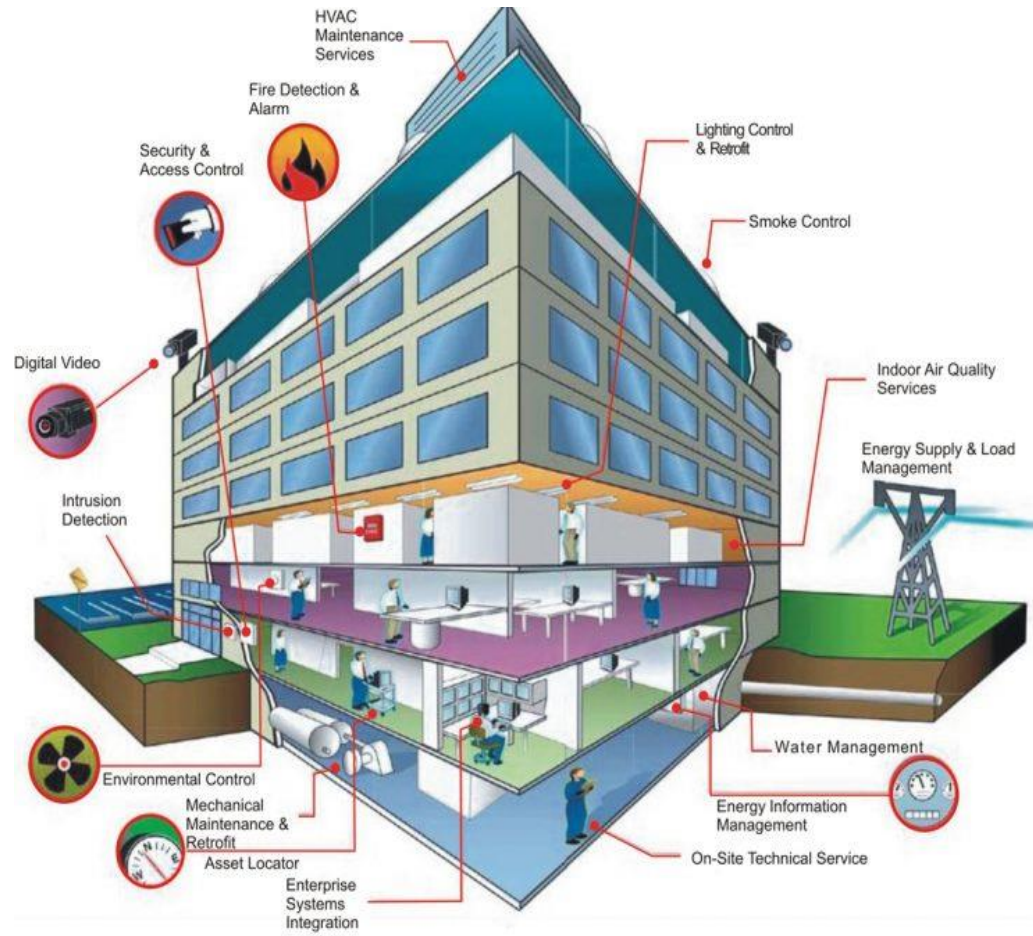
Teicholz Productivity Curve



Singapore: Construction Productivity

Green Buildings

绿色建筑



Well Being & Productivity

健康 & 效率



1973年

纽约 → 休士顿

约2.5小时
(1973)

约4小时
(2018)

伦敦 → 爱丁堡

约1小时15分
(1995)

约1小时25分
(2018)

马德里 → 巴塞罗那

约55分钟
(1995)

约1小时15分
(2018)

2018年



jetBlue

2008年起要求减慢所有航班速度，使每个航班的飞行时间增加2分钟

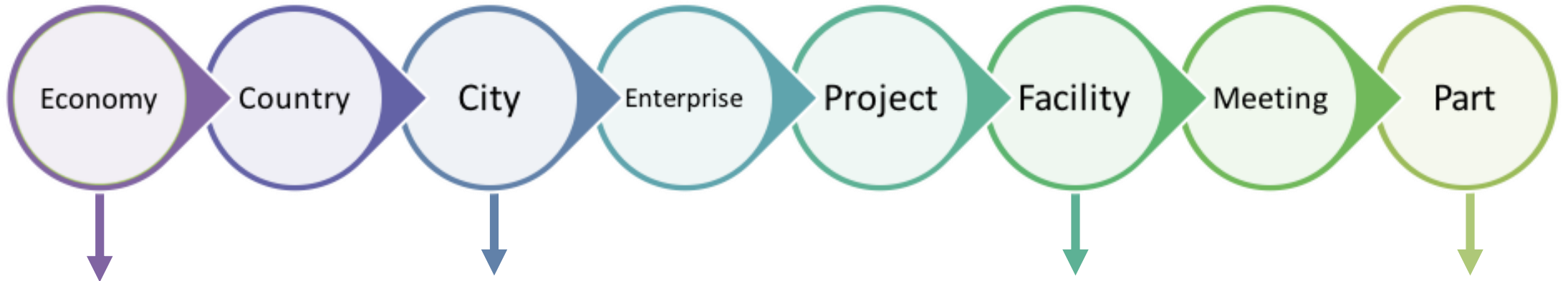


\$ 13,600,000 的费用节省

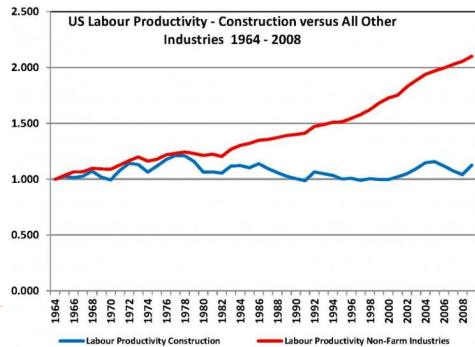
Standardized & Scalable Sets of KPI

标准化, 可扩展的关键绩效指标组合

Call for Global Collaboration 呼吁全球协作



Productivity rate
生产率



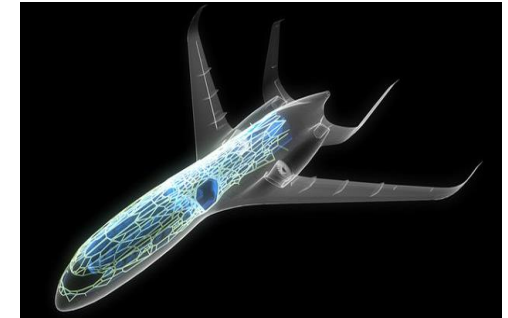
Societal Impact
社会影响



User Engagement
使用者参与



Parts Optimization
部件优化

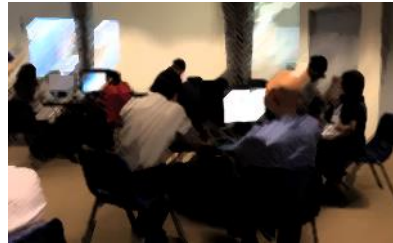


图片来源: Teicholz | ESRI | fracturereality.io | BBC





虚拟设计与建造(VDC) 专业认证课程 2019



strategic
buildinginnovation



自主学习
九大核心模块



在线知识评估



专家指导



专业实践科目

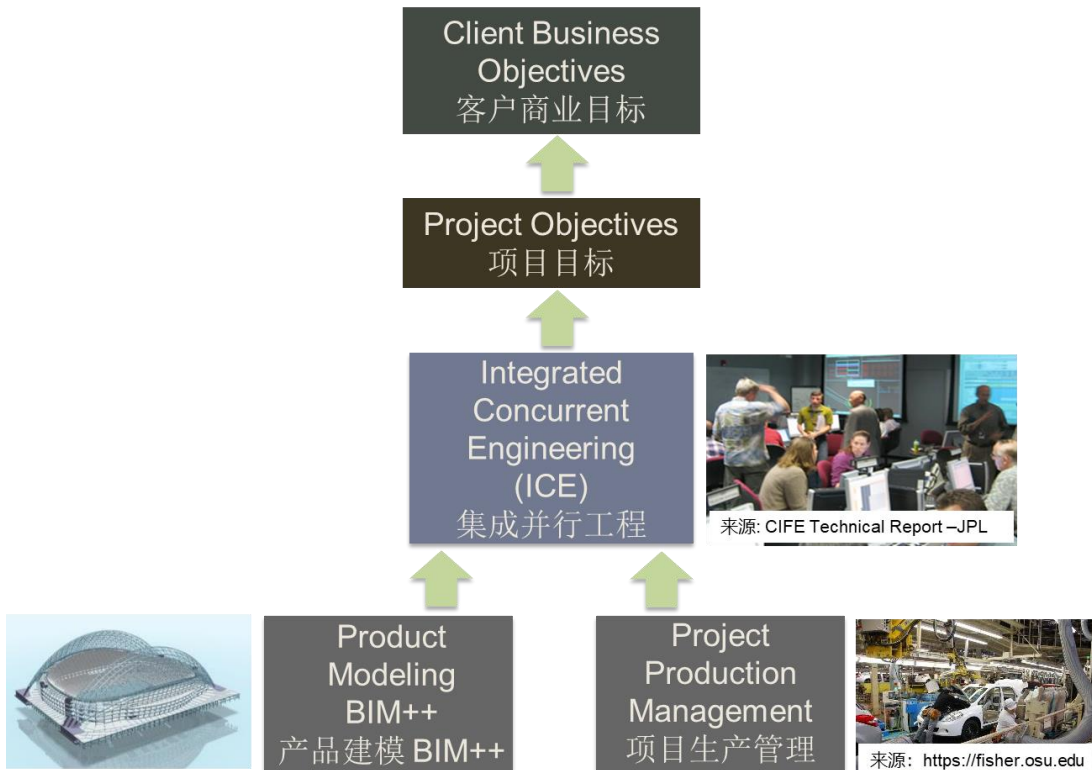


项目进展汇报
及探讨



整合工作坊

Virtual Design and Construction (VDC)



Education & Research



CIFE - The Center for Integrated Facility Engineering - is a research center at Stanford University, working on issues relevant to the Architecture - Engineering - Construction industry.

The CIFE mission is to be the world's premier academic research center for Virtual Design and Construction of Architecture - Engineering - Construction (AEC) industry projects.



1. VDC 认证课程 #1 : 2014-2015
2. VDC 管理层课程 #1 : 2014
3. VDC 认证课程 #2 : 2015-2016
4. VDC 管理层课程 #2 : 2015
5. VDC 认证课程 #3 : 2016-2017
6. VDC 管理层课程 #3 : 2016
7. VDC 认证课程 #4 : 2017
8. VDC 管理层课程 #4 : 2017
9. VDC 认证课程 #5 : 2017-2018

以往课程回顾：知名建筑工程行业公司考察



以往课程回顾：专家授课、师生互动



以往课程回顾：VDC实际应用进展汇报及探讨



虚拟设计与建造(VDC)正越来越多地被用于帮助企业实现绩效改善目标。该理念注重高效的项目和生产计划方法，并以量化指标衡量绩效成果，例如**问题解决需时减少约40%**，**总体项目工期缩短约50%**等。成功被选拔参与VDC培训课程的学员将：



运用**协同**计划，管理和项目执行方法来优化设计和施工项目的成功。



建立**愿景，策略和实施路线图**，以实现商业和项目目标。



将VDC应用于**实际项目**。



将**BIM**作为融合**可视化、模拟以及全团队协作**的广泛方法，以实现项目成果最优化。

Strategic Building Innovation (SBI) 咨询团队已与**斯坦福大学综合设施工程中心(CIFE)**合作多年，为数百名业界专业人士成功举办了多次VDC认证课程及VDC管理层课程。顺利完成课程的学员现正将习得的VDC技能运用于日常项目之中。SBI近期已获批通过**斯坦福大学专业发展中心(SCPD)**举办类似课程及强化课程。

SCPD Certificate Of Completion

斯坦福大学专业发展中心(SCPD) 结业证书

COURSE COMPONENTS 课程内容	DELIVERED BY 课程提供方
Nine Core Modules of Self-paced Learning 自主学习九大核心模块	斯坦福大学专业发展中心(SCPD)
Online Knowledge Assessments 在线知识评估	斯坦福大学专业发展中心(SCPD)

随着建造行业的飞速发展，虚拟设计与建造 (VDC) 正越来越多地被用于将客户的建筑绩效目标高效地转化为可衡量的项目及生产计划。在课程中，您将通过VDC学习到工作流程，设计计划及虚拟建模方法，并通过以下三种方式理解VDC如何改善建筑体验：



多专业并行协调管理，以设计可使用、可运营、可持续的建筑



整合可无缝访问的项目信息，以支持项目团队成员间的协作



优化项目团队的工作流程，以改善项目决策

SCPD Certificate Of Achievement & Custom Certificates

斯坦福大学专业发展中心(SCPD) 成就证书 & 定制证书

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Online Knowledge Assessments 在线知识评估	斯坦福大学专业发展中心(SCPD)
Expert Instruction 专家指导	SBI
Professional Practicum 专业实践科目	SBI
Project Progress Check-ins 项目进展汇报及探讨	斯坦福大学专业发展中心(SCPD) + SBI
Integration Workshop 整合工作坊	斯坦福大学专业发展中心(SCPD) + SBI
*Optional SBI Learning Courses 可选SBI学习课程	SBI

于国内/海外参加课程工作坊



中国同济大学



美国斯坦福大学

联系我们

如有兴趣咨询或进一步讨论，欢迎发送电邮至：

bimSCORE@bimSCORE.com

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Founder & CEO

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bimSCORE (香港) 咨询公司创办人兼首席执行官