MCG
In Collaboration with THE BOSTON CONSULTING GROUP

EPU
ECONOMIC PLANNING UNIT
PRIME MINISTER'S DEPARTMENT, MALAYSIA

Driving Productivity for the Nation

Workshop Series 1

Private Healthcare sector

28 April 2016

Registration

	Name	Designation	Company / Association / Ministry	Email address	Contact number
1					
2					
3					
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5					
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8					
9					
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11					
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19					
20					

We will respect your privacy and only use this in relation to the workshops!

Objectives of today

1. **Recap the strategic direction for Productivity from the 11th Malaysia Plan**
2. **Provide overview of development of the National Productivity Blueprint**
3. **Discuss key gaps between our starting point and desired end-state for your sector's productivity**
4. **Brainstorm potential ways to close the productivity gap**

What's in it for you?

Shape your industry so that you can be more competitive locally and internationally

Access opportunities to engage with the government, regulators and other key players

Remove barriers that are impeding productivity growth in your industry

Introducing your facilitators for the day

Zarif Munir

- **Partner, KL**
- Key Southeast Asia node for Healthcare and Operations practice area

Neil Soderlund

- **Senior Advisor, SYD**
- Head of the Health Care Practice Area in Australia and New Zealand
- Former specialist health care consultant in South Africa and the UK

Nurlin Salleh

- **Project Manager, KL**
- Deep experience in the public sector including large scale transformation
- Experience in enablement, gov procurement and innovation

Su En Yong

- **Project Manager, KL**
- Deep experience in Malaysian public sector, including with EPU
- Worked on large scale transformation for Msian govt

Jing Ting Yong

- **Consultant, KL**
- Extensive experience in M'sian gov projects and transformation
- Experience in operations in industrial goods within Asia

Nadia Anwar

- **Consultant, KL**
- Experience working with various Malaysian GLCs and the public sector, including economic development

Liyana Satar

- **Consultant, KL**
- Experience in public sector including economic development

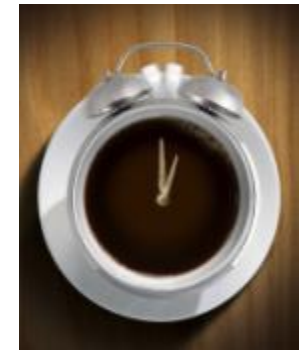
Some ground rules for today

This is our future: we need to think about what we will do differently tomorrow

Everyone is expected to fully participate. This must be a collaborative session

Let's be mindful of time management and focus on what's important

Respect each other's contribution, minimize disruption from phone calls or emails if possible



We will try to stick to the agreed breaks

Two types of sessions we will go through today

Presentation

1. Meant to provide quick summary and overview only
2. Only ~20% of today's session on the presentation
3. Feel free to interject the presenter if you have interesting points to share

Group Discussion

1. Your opportunity to shape the agenda ➔ should take full ownership
2. Everyone has an equal voice, regardless of entity you represent
3. MCG's role is not to steer nor influence, but to facilitate the discussions

Agenda

Time	Session		PIC
0830 - 0900	Arrival and registration		
0900 - 0930	**Project context** - Why have we embarked on this project? - What does this project entail?	P	EPU/ BCG
0930 - 1030	**What productivity means for this subsector** - Why is it important? - Gap vs RMK 11 target and benchmarks - Our approach and initial views (challenges and existing plans)	P	BCG
1030 - 1045	Tea break		
1045 - 1145	**Breakout session #1: Verify critical challenges and drill down to root causes**	G	Participants
1145 - 1215	Recap to the room		Participants
1215 - 1315	Lunch break		
1315 - 1345	Best practices from around the world	P	BCG expert
1345 - 1445	**Breakout session #2: Brainstorm and prioritize productivity improvement initiatives going forward**	G	Participants
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1530 - 1600	Closing remarks and next steps		BCG

P ***Presentation*** G ***Group discussion***

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P ***Presentation*** G ***Group discussion***

Overall project objectives to drive National Productivity

Four key objectives to drive National Productivity

1 Support RMK-11 Implementation

- Guide implementation to accelerate productivity improvements at national, industry and enterprise levels between 2016 and 2020

2 Provide comprehensive national productivity framework

- Address issues and challenges to productivity in a comprehensive and cohesive manner through the development of a national productivity framework

3 Outline productivity improvement strategies

- Design and develop improvement strategies, initiatives and programs at national, industry and enterprise levels

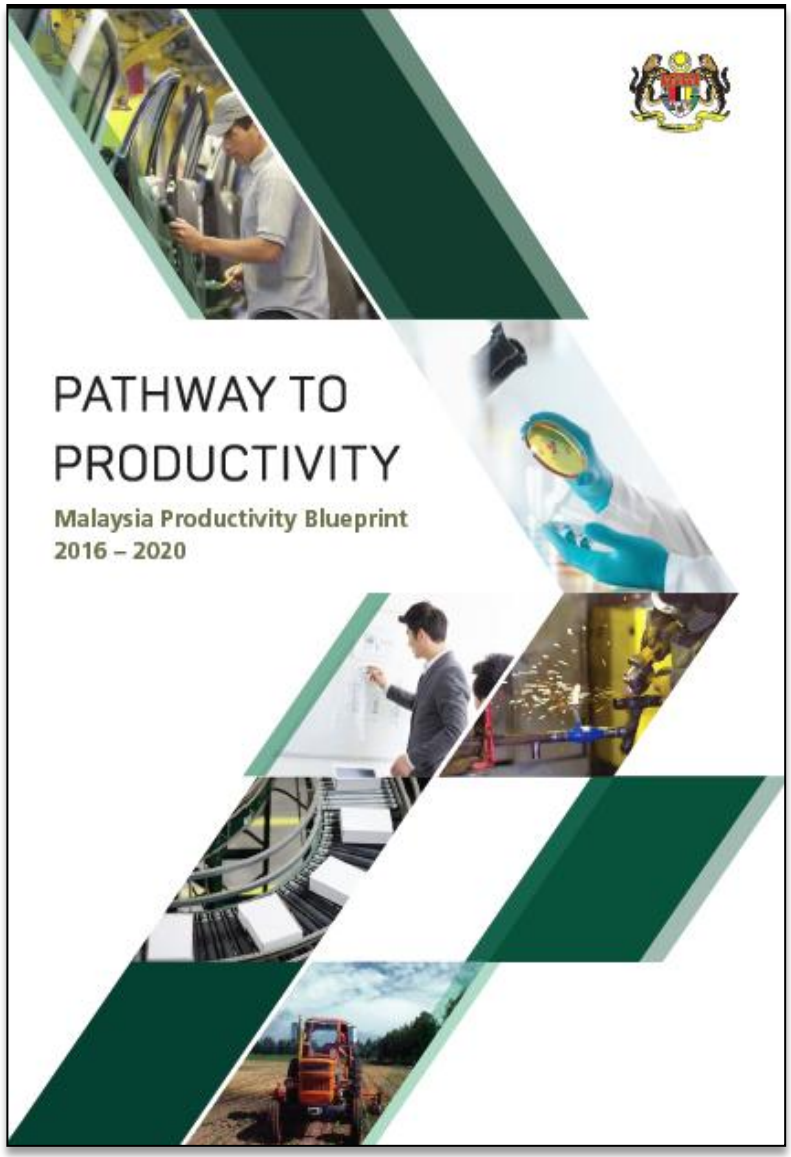
4 Commence implementation of productivity action plans

- Deep-dive and define action plans for priority sectors and support launch and implementation

Source: EPU's RFP for the Malaysia Productivity Blueprint

To start with, Malaysia Productivity Blueprint developed and ready for launch

Illustrative



"Economic growth during the Eleventh Plan must be driven by more sustainable sources of growth, particularly improvements in productivity. Targeted initiatives will be introduced at the national, industry and enterprise levels to ensure tangible and significant improvements in productivity. Specific productivity targets will be set and the outcomes will be closely monitored." | *11th Malaysia Plan*

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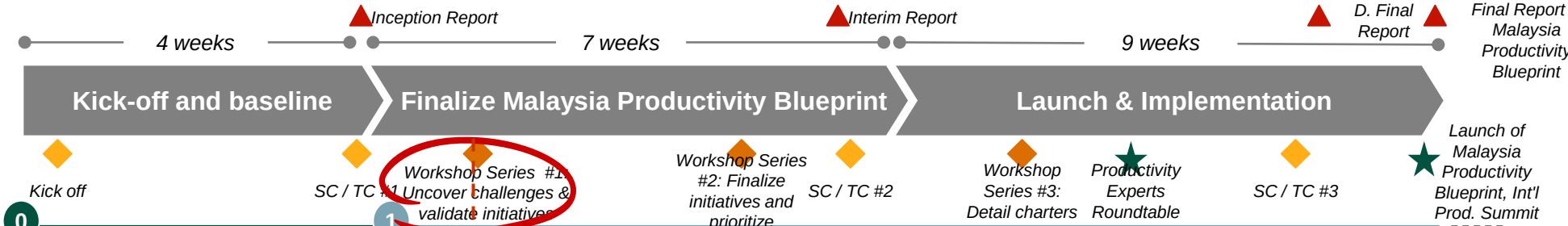
Aim to finalise blueprint and commence implementation within 20 weeks



0 Preparation

- Conduct ***comprehensive review*** (incl. biz regulations) of productivity policies, strategies and initiatives by sector to broadly ***assess effectiveness***
- Identify ***high-level barriers*** that impede productivity through interviews (via industry associations, selected industry representatives)
- Conduct ***intl. benchmarking*** of productivity strategies and impact
- Prepare for Workshops
- Draft Inception report

1 Finalize and prepare launch of Malaysia Productivity Blueprint

- Detail ***key challenges*** that impede productivity by sector
  - Run *Workshop Series # 1* (10-12 lab sessions), 2 days each, with key representatives from each sector to ***uncover key productivity challenges***
  - Representatives to include associations, selected enterprises and key govt. agencies
  - ***Prioritize key challenges*** faced by sectors
- Develop ***productivity improvement strategies***, based on industry challenges and benchmark results, including expected impact, at national, industry & enterprise levels
- ***Validate productivity program and targeted initiatives***
  - Run *workshop Series # 2* (10-12 lab sessions), 2 days each, with key representatives from each sector to ***finalize productivity initiatives***
  - ***Prioritize set of high-priority sectors*** to start implementation
- Draft ***comprehensive action plans*** for finalized productivity program & initiatives (roles, implementation milestones, timelines, cost of initiatives, etc.)
- Draft ***Malaysia Productivity Blueprint***, encompassing improvement strategies at national, industry and enterprise levels
- ***Refine and finalize*** Malaysia Productivity Blueprint[1]
- ***Support launch*** of Malaysia Productivity Blueprint

2 Prepare for implementation

- Facilitate *Workshop Series # 3 (*5-6 lab sessions), 2 days each, to ***detail and validate action plans***
- ***Deep-dive into 3-4 high-priority sectors*** to commence implementation with Working Groups identified
- Train and deploy Productivity SWAT team to ***assess, enhance and support implementation*** going forward
- Develop ***operating framework for National Productivity Council*** (including TOR, membership and first meeting scheduling and agenda)
- Support ***launch of PMO***[2] (incl. tools, templates)

3 Support Culture of Productivity Campaign

- Define ***objectives for campaign***, identify ***key audience segments*** and support PR firm (tbc) with ***content and key messages by segment*** for brand and campaign launch

Ongoing implementation of Medium and Low Priority Initiatives

4 Enablement and training to build longer-term capabilities

- ***Hand-in-hand joint team approach*** (with BCG and full time team members from key stakeholders such as EPU and related agencies) with BCG team ***actively providing capability transfer for continuity***

1. BCG to continue support to EPU beyond 20 week project period to finalize Malaysia Productivity Blueprint 2. Program Management Office

Active engagement with key stakeholders to ensure feasibility of implementation

Workshop series #1 (25/4 – 5/5)

Identify biggest productivity challenges and initiatives across key sectors

Workshop series #2 (16/5-27/5)

Detail out initiatives to drive productivity across key sectors and obtain stakeholder agreement

Interviews (ongoing)

Interviews held with select public and private sector stakeholders to

- Highlight productivity challenges
- Discuss and prioritize solutions

Questionnaire (May)

Link will be sent out

- gauge productivity sentiment
- understand productivity challenges across sectors and particularly at enterprise level

Let's start by sharing your views on "productivity"

1. **Register on pollev.com/productivity using your smartphone or tablet browser**

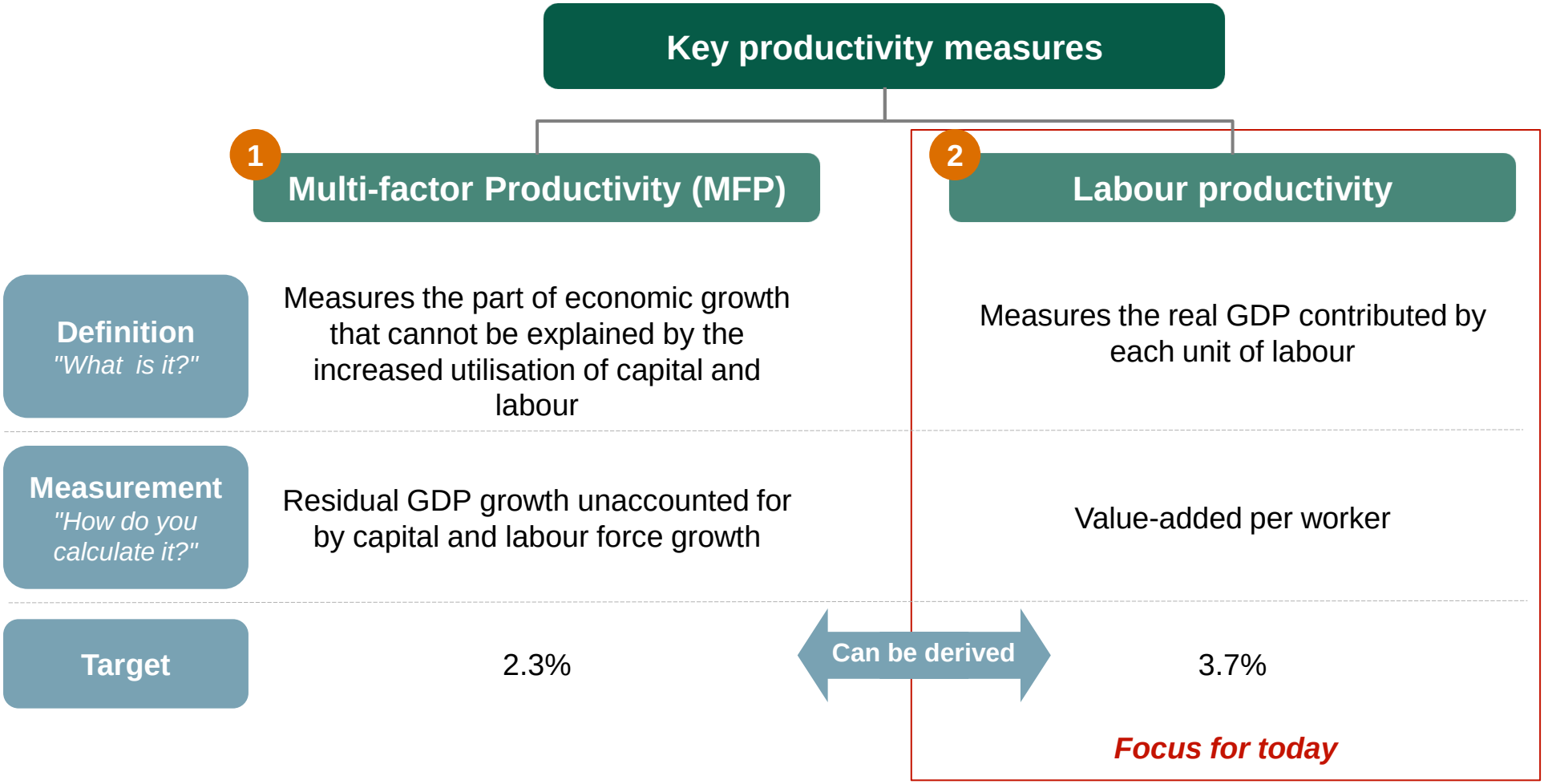
2. **Answer the test question "Did you sleep well last night?"**

3. **Answer the question what "productivity means to you?" by choosing and typing one word from the selection provided below.**

profitability	growth	sales	cost
efficiency	layoffs	investment	funding

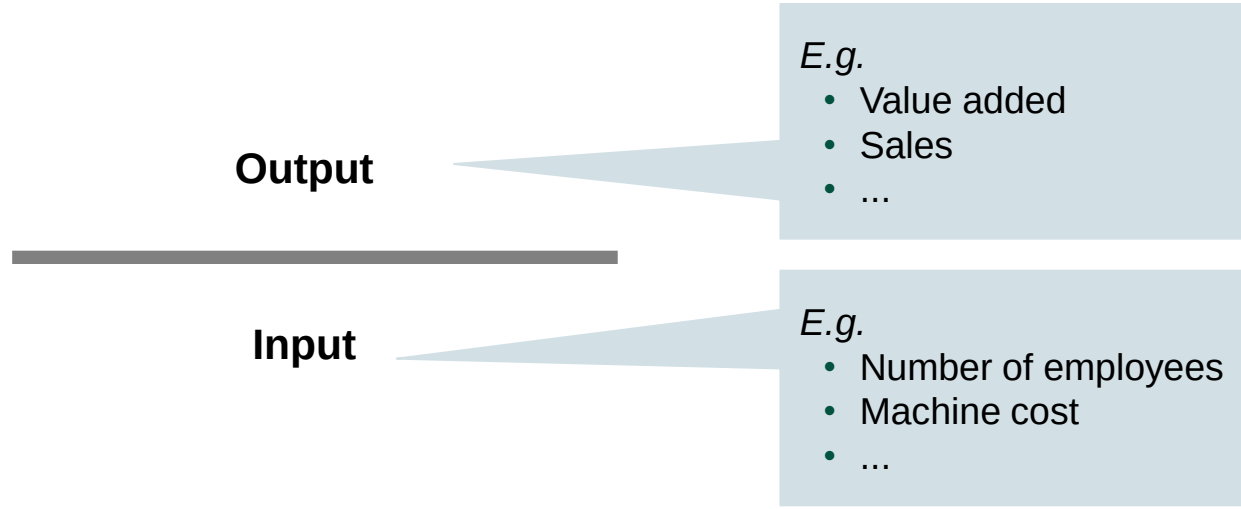
4. **See views across today's audience shared live!**

11th Malaysia Plan (RMK11) set clear targets for two measures of productivity defined at national level



1. As per RMK-11 2. Under mild assumptions, i.e., using Cobb-Douglas function and capital share of output remains constant over the short to medium term
Source: 11th Malaysia Plan, MCG analysis

How do we define productivity?



"Productivity isn't everything, but in the long run it is almost everything. A country's ability to improve its standard of living over time depends almost entirely on its ability to raise its output per worker... "

-- Paul Krugman, The Age of Diminishing Expectations (1994)

In Healthcare, a value-based approach needs to be taken into consideration

Outcomes that matter to patients

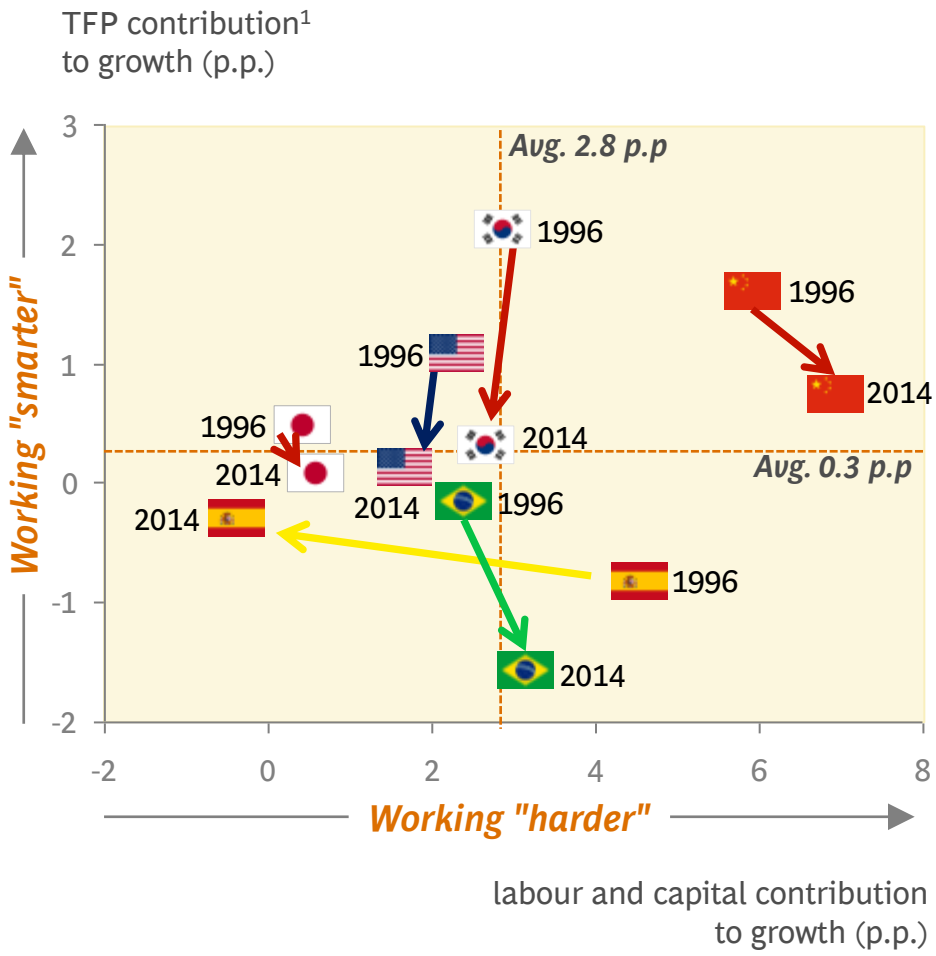
Cost per patient

Value

Later today, let's also discuss the operational metrics that help drive to good outcomes with minimal inputs

Globally, countries are working harder but not smarter

Individual growth paths and one critical commonality: decline of TFP contribution to growth



KEY OBSERVATIONS

Working smarter?: Decline of productivity growth is the common thread across key economies

- A number of large economies in negative terrain
- All economies exhibit downward trends in productivity growth

Working harder: labor and capital contributions much larger in absolute terms

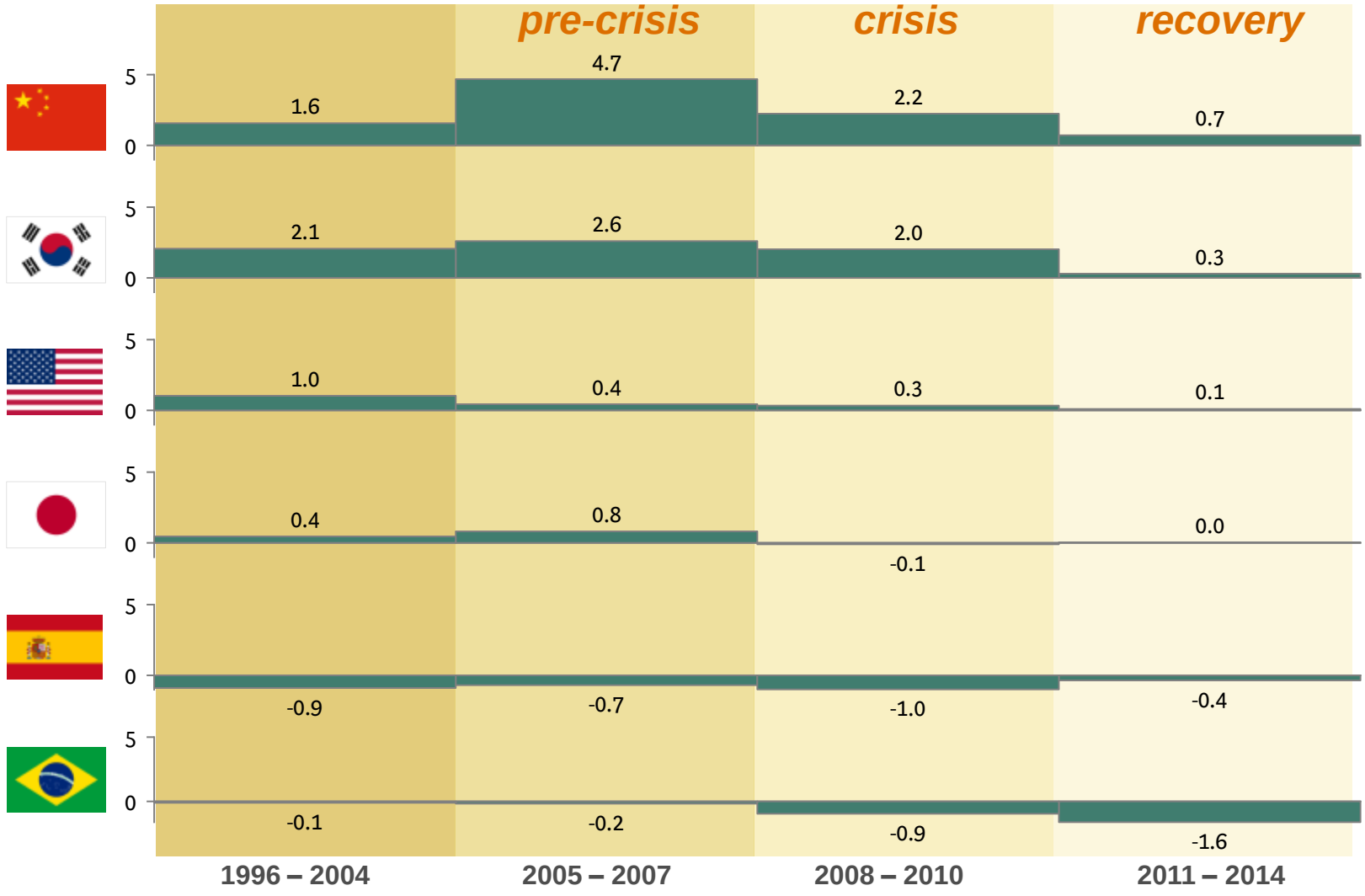
- Capital often the more consistent growth driver, esp. in EMs
- Labor gained momentum post-crisis (example: the US)

1. Equivalent to TFP growth following the production function $\Delta \ln GDP = \nabla K \Delta \ln K + \nabla L \Delta \ln L + \Delta \ln TFP$
Note: Stylized paths based on start (1996-2007) and end (2011-2014) period averages
Source: The Conference Board, BCG Center for Macroeconomics analysis

Productivity (TFP) growth: disappearing everywhere

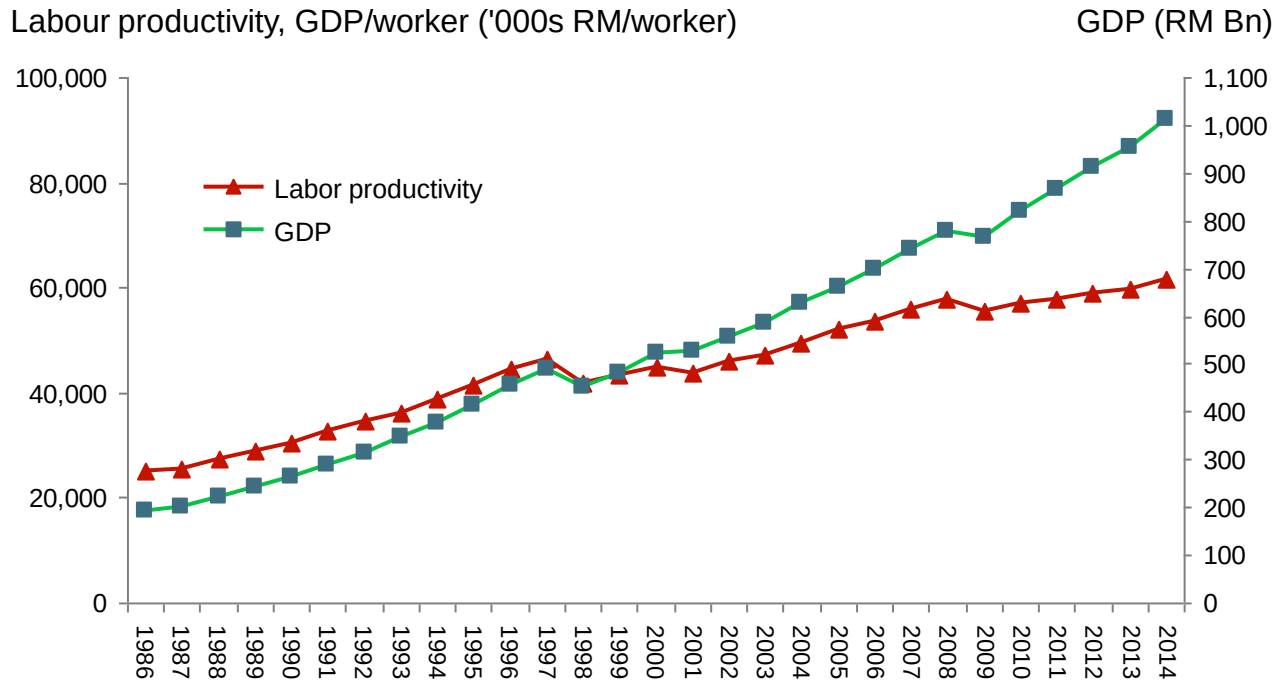
Global trend, all economies

Total factor productivity growth, period averages, %



Source: The Conference Board, BCG Center for Macroeconomics analysis

Malaysia's gap between labor productivity growth and GDP growth has been widening



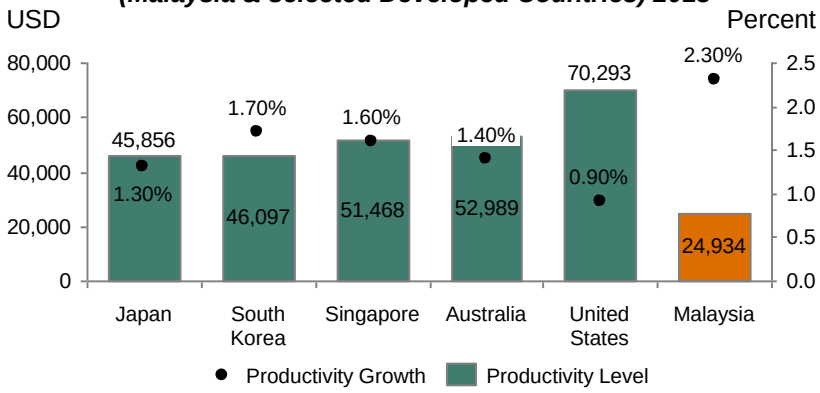
CAGR	1985 - 1994	1995 - 2004	2005 - 2014	RMK-11 target
GDP growth	7.15%	4.22%	4.37%	5.8%
Labour force growth	3.10%	2.58%	2.06%	
Labour productivity growth	4.25%	1.82%	1.71%	3.7%

Note: GDP based on 2010 prices. Labour productivity based on MPC data
Source: Economics and Corporate Planning Division, MPC Productivity Report 2014/2015, World Bank, EIU, DOS, MCG analysis

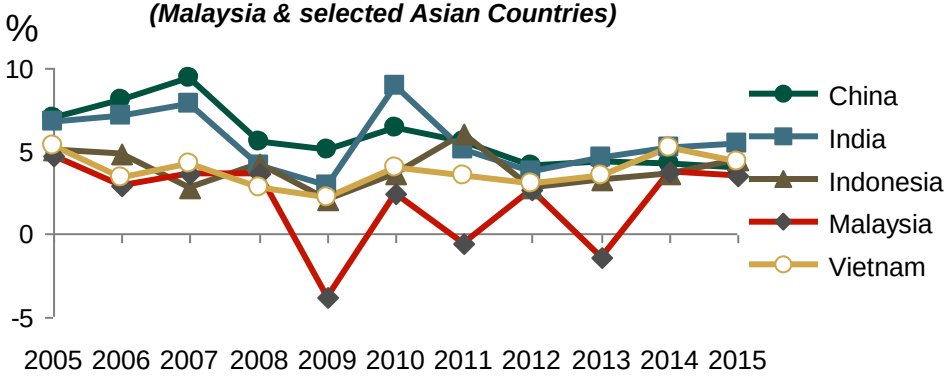
We are falling behind ... with risk of further slow down

Productivity behind developed countries, and slowing compared to emerging Asia

Level of Productivity[1] and Growth (Malaysia & selected Developed Countries) 2013



Level of Productivity Growth over the last 10 years (Malaysia & selected Asian Countries)



Ranking of international productivity slipping

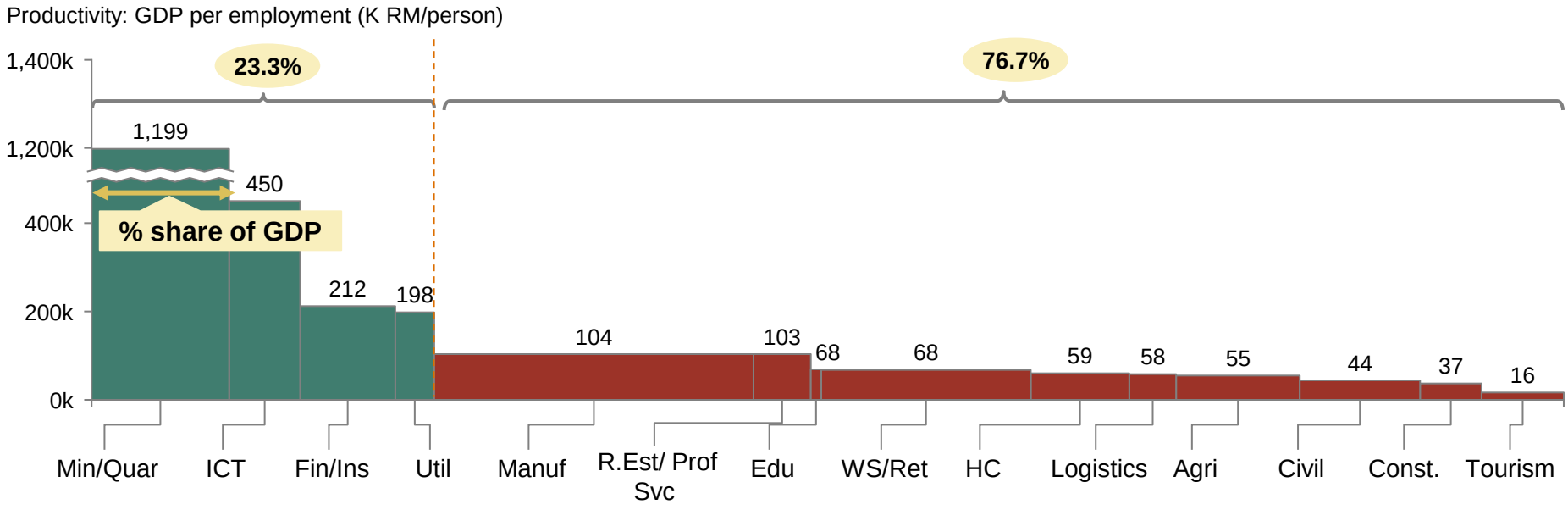
Ranking by GDP PPP per hr worked in 2014 USD

Rank	2009	2015
1	Luxembourg	Luxembourg
2	Norway	Norway
3	Belgium	Belgium
...		
10	Switzerland	Switzerland
11	Sweden	Singapore
...	...	...
20	Spain	Hong Kong
21	Trinidad & Tobago	Iceland
...	...	
44	**Malaysia**	Russia
45		**Malaysia**
...		
50	Bulgaria	Mexico
51	South Africa	South Africa

1. labour productivity per person employed, 2013
Source: Malaysian Productivity Corporation (MPC). The Conference Board – Total Economy Database, Oxford Economics

~77% of our economy still comprise of sectors with low productivity

Breakdown of productivity by sector vs % share of GDP, 2014

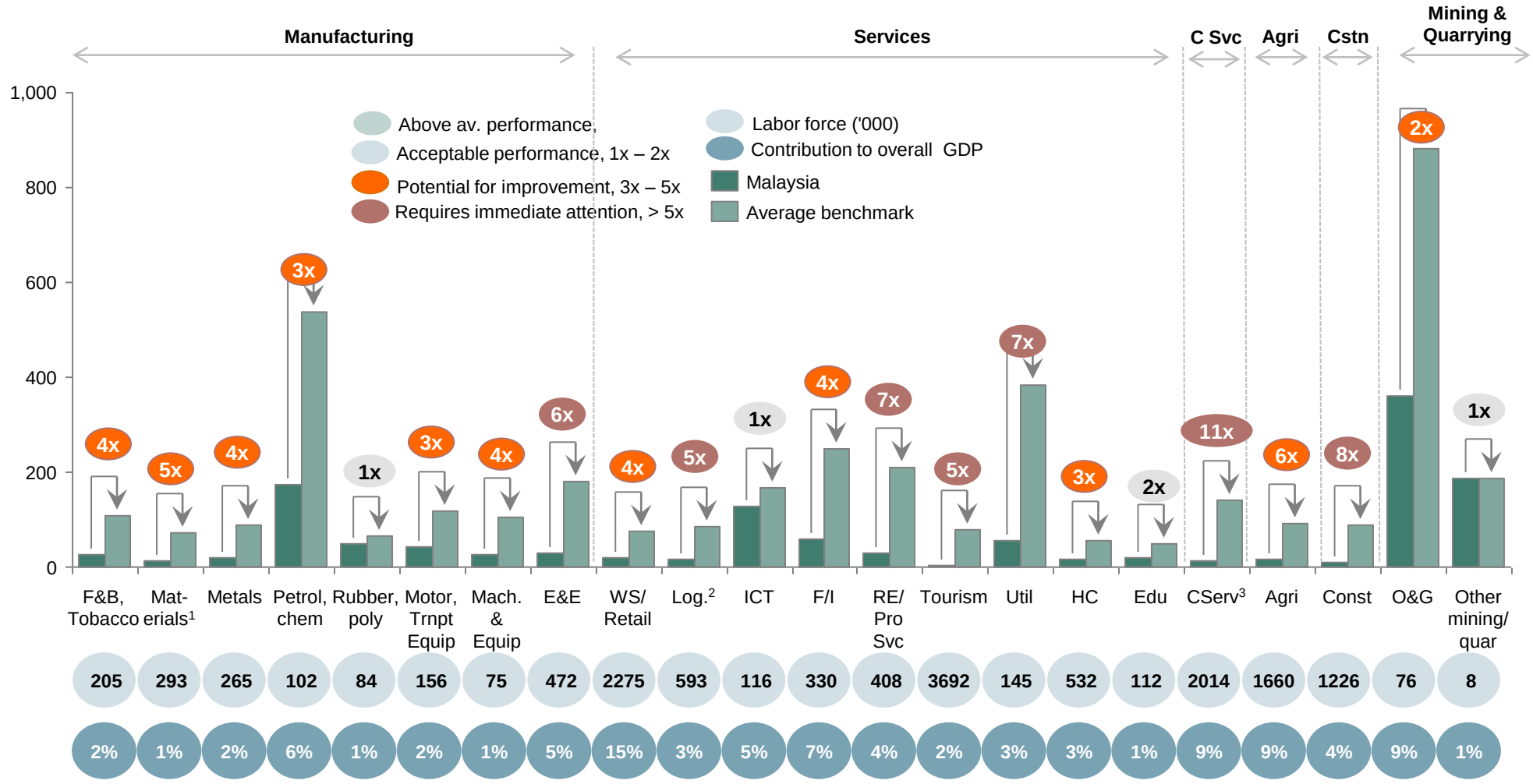


	Min/Quar	ICT	Fin/Ins	Util	Manuf	R.Est/ Prof Svc	Edu	WS/Ret	HC	Logistics	Agri	Civil	Const.	Tourism
Value add (RM B)	109	56	75	31	253	46	8	166	78	37	98	95	49	65
Employ-ment[3] ('000)	84	116	330	145	2266	408	112	2275	532	593	1660	2014	1226	3692

Note: RMK 11's target is RM 92.3K per person.
Source: MPC, DOS, MCG Analysis

Substantial gaps remain to be narrowed to benchmarks

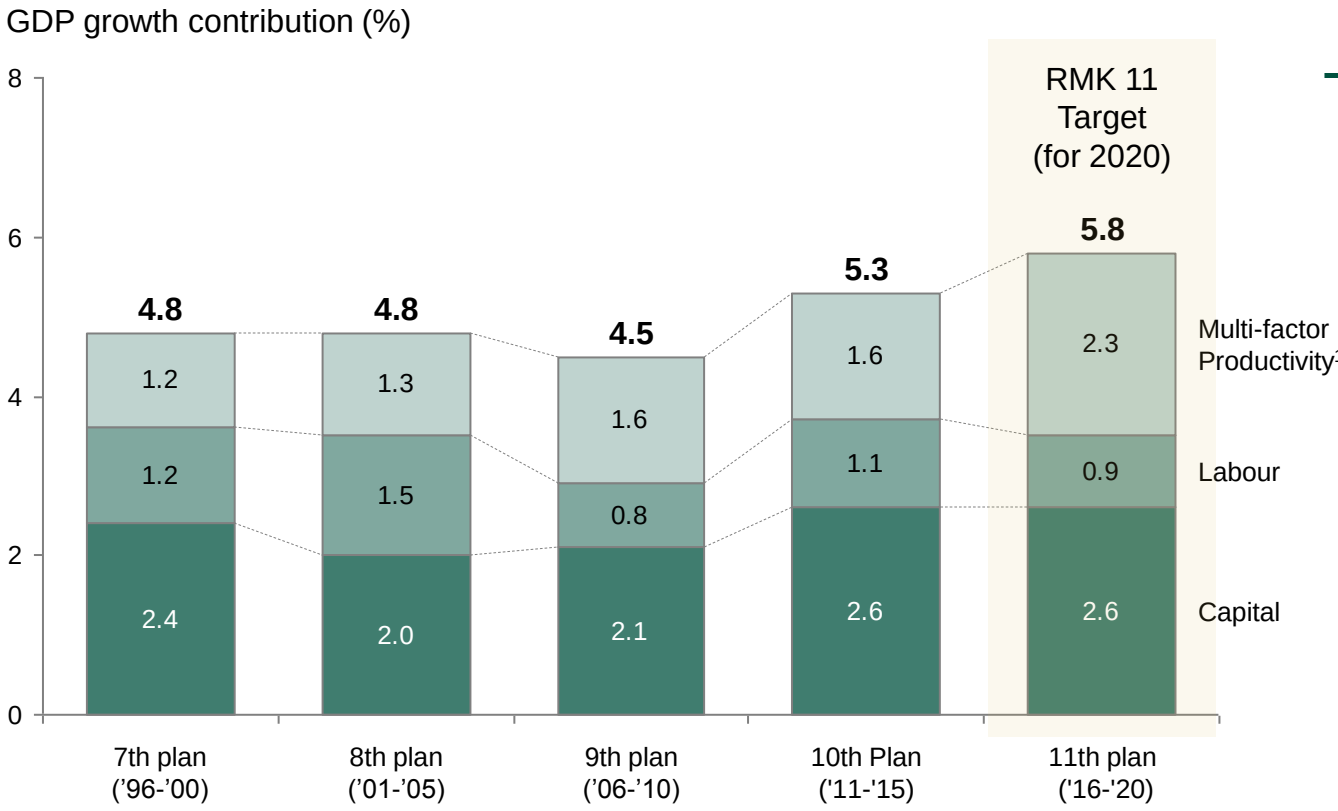
Labor Productivity by selected sub-sectors vs. benchmark countries 2014 (USD $, '000)



1. Textile, Apparel, Leather 2. US data excludes pipeline transportation 3. Benchmark countries used are SG (Public Admin & Def), US (Fed & State national defense and non-defense)
Note: Benchmark countries: Singapore, Australia and USA in 2014 , based on 2010 constant prices. Where sub-sector is unavailable, benchmark comparison only done on relevant countries
Source: MPC, relevant Department of Statistics for Singapore, Australia and USA , MCG Analysis

Target to shift from input to productivity-driven growth

Capital investment has driven ~50% of GDP growth historically



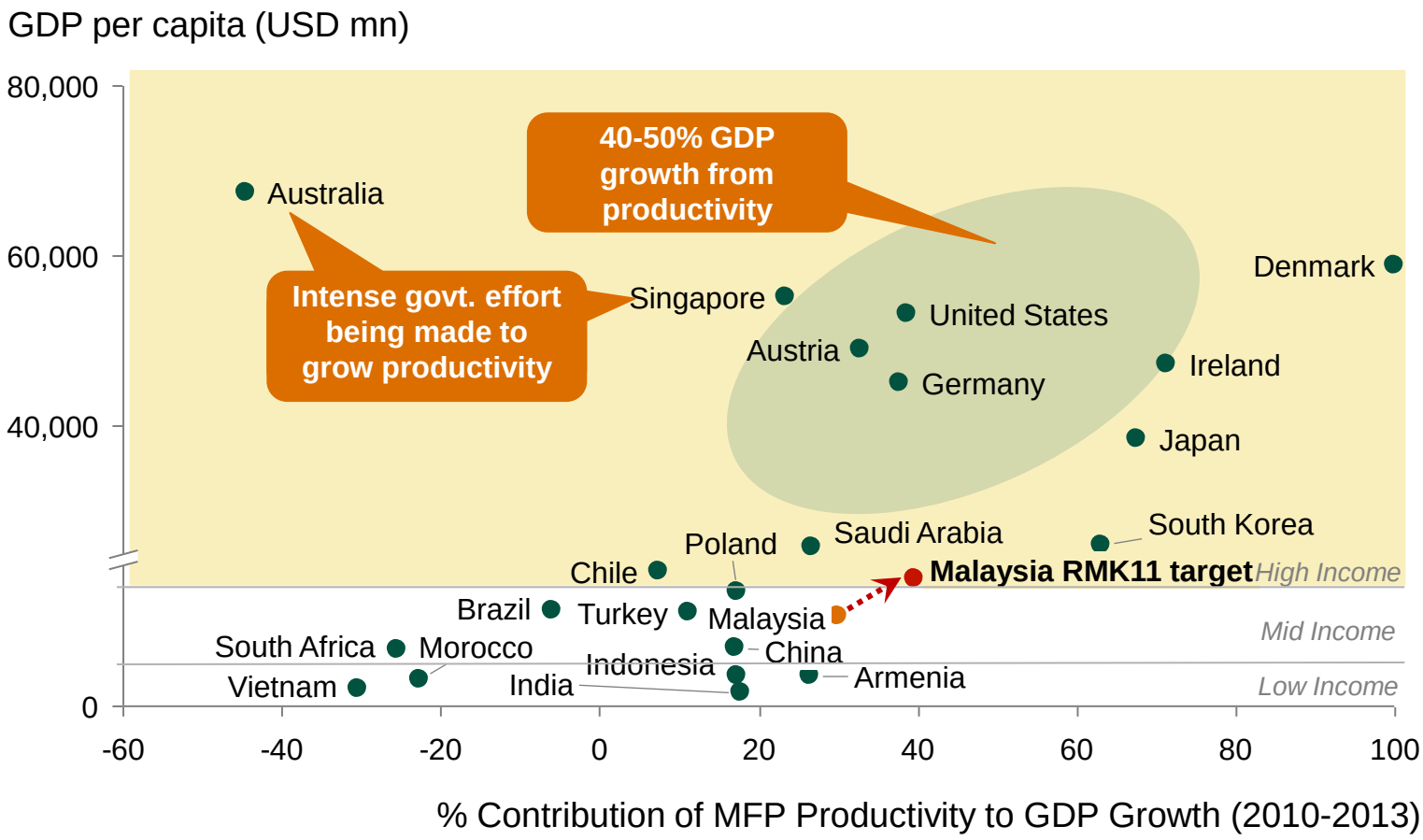
Average contribution %

	'96 – '15	'16 – '20
Multi-factor Productivity[1]	30%	40%
Labour	24%	16%
Capital	46%	44%

To attain productivity target of RM92k per worker by 2020, accelerated growth needed for next 5 years

1. As measured by TFP Source: 7th – 10th Malaysia Plans; Figures for 10th and 11th Malaysia Plans are projected figures as stated in the 11th Malaysia plan document.
Source: 11th Malaysia Plan

Target will place M'sia within range of developed economies



1. % Contribution of Productivity to GDP growth is based on TCB data, average of 2010 – 2013 2. GDP per capita data from World Bank. current definition : high Income defined as GNI per capita of above USD 12,745; high mid income between USD 4,125 – 12,745; low mid income between USD 1,046 – 4,125
Source: 2014 The Conference Board, World Bank

Recent Govt. measures will require urgency to improve productivity and competitiveness

Subsidy reforms

Ongoing subsidy rationalization program for fuel and sugar since 2010

"As a **responsible** government, we should be **brave** in coming up with decisions which will put the country's **economy on a strong footing in the future**."

Dato Sri Najib Razak, PM Malaysia

Tightened foreign labor policies

Increased levies for foreign workers and revised min wage for foreign workers ...

"The government has decided to **delay the intake of foreign workers** from all source countries including Bangladesh. We urge all employers to **recruit local** workers as employees."

Datuk Seri Zahid, DPM Malaysia

...and recently froze recruitment of all foreign workers

Increasing liberalisation

Malaysia inked landmark TPPA with 11 other countries in 2016

"It cannot be denied there are several challenges ahead, but the Government recognizes that **as a whole, Malaysia can stand to benefit**."

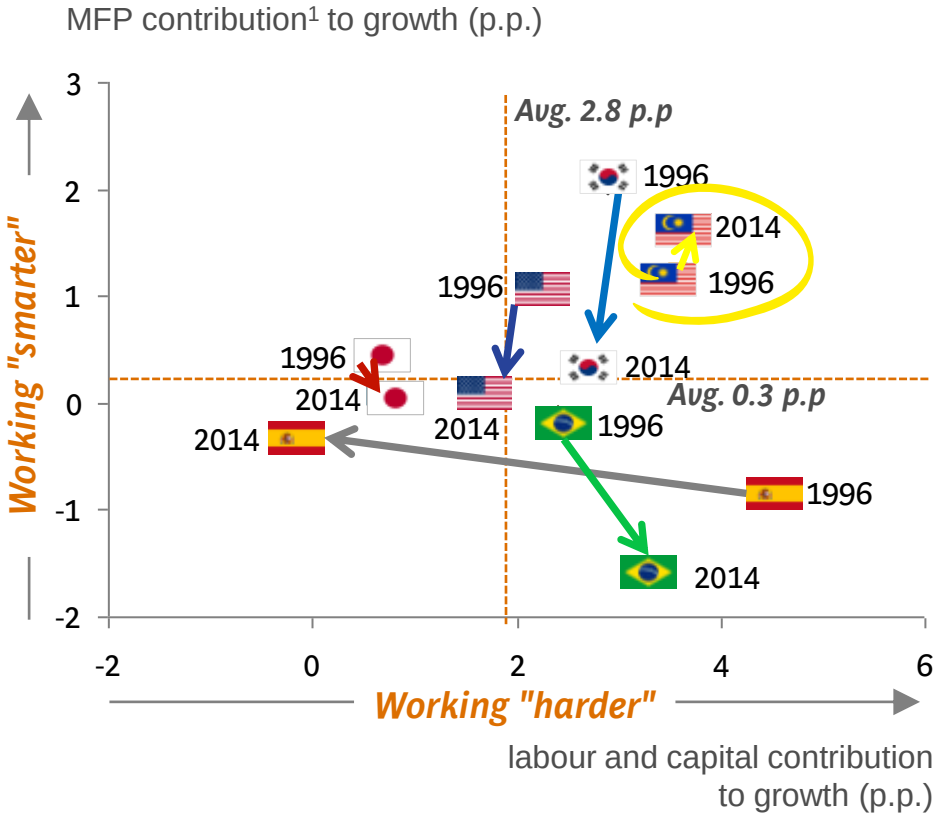
Datuk Seri Mustapa Mohamed, MITI Minister

Reduction in protectionism measures to raise market competitiveness; players need to adapt to new reality

Source: Press search, MCG analysis

Going forward, M'sia needs mixed approach to drive productivity, including quick-wins and long-term initiatives

Relative to more advanced economies, MY has shown improvement



... and will need a differentiated approach on productivity growth

Advanced economies face bigger challenge of investing further in R&D to drive new technologies

- Technology getting to "saturation" point i.e: Internet productivity gain largely fully absorbed while new breakthrough technology has yet to develop
- Higher R&D cost in pushing the "frontier" of productivity

Need to prioritize quick wins in Malaysia to catch up on productivity

- Facilitate adoption of technologies and innovation
- E.g., Tech transfer by creating a suitable environment to attract FDIs via trade rules, legal guarantees, incentives, etc.…

While pushing for traditional productivity improvement initiatives

- E.g., Better management and organizational practices
- E.g., Removing regulatory obstacles

As well as investing in R&D for high impact productivity in the longer-term

- Focus on enabling industries that have high spillover impact to the economy i.e.: ICT, semiconductor manufacture, general equipment, etc.

1. Equivalent to TFP growth following the production function $\Delta \ln GDP = \nabla K \Delta \ln K + \nabla L \Delta \ln L + \Delta \ln TFP$
Note: Stylized paths based on start (1996-2007) and end (2011-2014) period averages. Malaysian data based on RMK 11 reports
Source: The Conference Board, BCG Center for Macroeconomics analysis

Success will ensure all segments of society benefit!

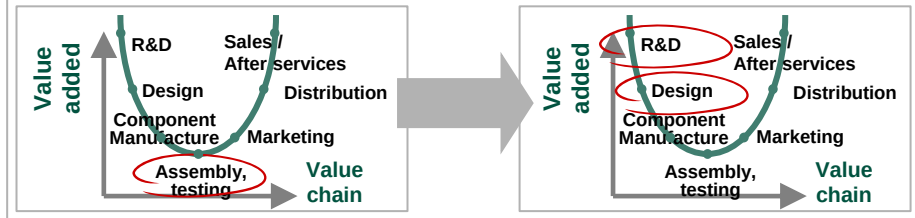
Illustrative

Nation

2015	2020
RM 77 k labour productivity	**RM 92 k** labour productivity
Middle income	**High** income

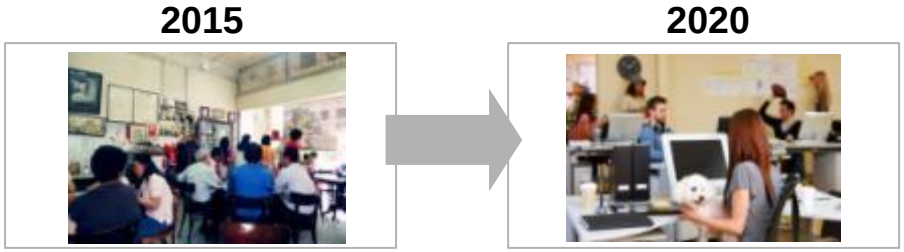
- Higher productivity increases output per worker and **disposable incomes**, **boosting economy further**

Industry



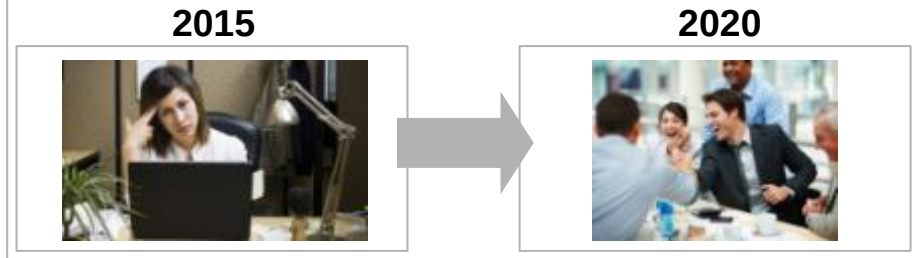
- Raising industry productivity enables **integration to higher value-add products, processes and value chain segments**

Enterprise



- Drive to boost productivity inspires constant innovation for **the most productive technology and methods, raising enterprise profits**

Individual



- Individuals are incentivized to work more productively, **raising wages**, enabling **more free time**, **better work quality and job satisfaction**

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P ***Presentation*** G ***Group discussion***

Malaysia's private healthcare sub-sector comprises 3 industries

Private Healthcare

Definition

Human health and social work activities ranges from health care provided by trained medical professionals in hospitals and other facilities, over residential care activities that still involve a degree of health care activities to social work activities without any involvement of health care professionals.

Health Services

1 Human Health Activities

- Hospital activities
- Medical & dental practice activities
- Other human health activities

Social Work Services

2 Residential Care Activities

- Residential nursing care facilities
- Residential care activities for mental retardation/ health/ substance abuse
- Residential care activities for the elderly and disabled
- Other

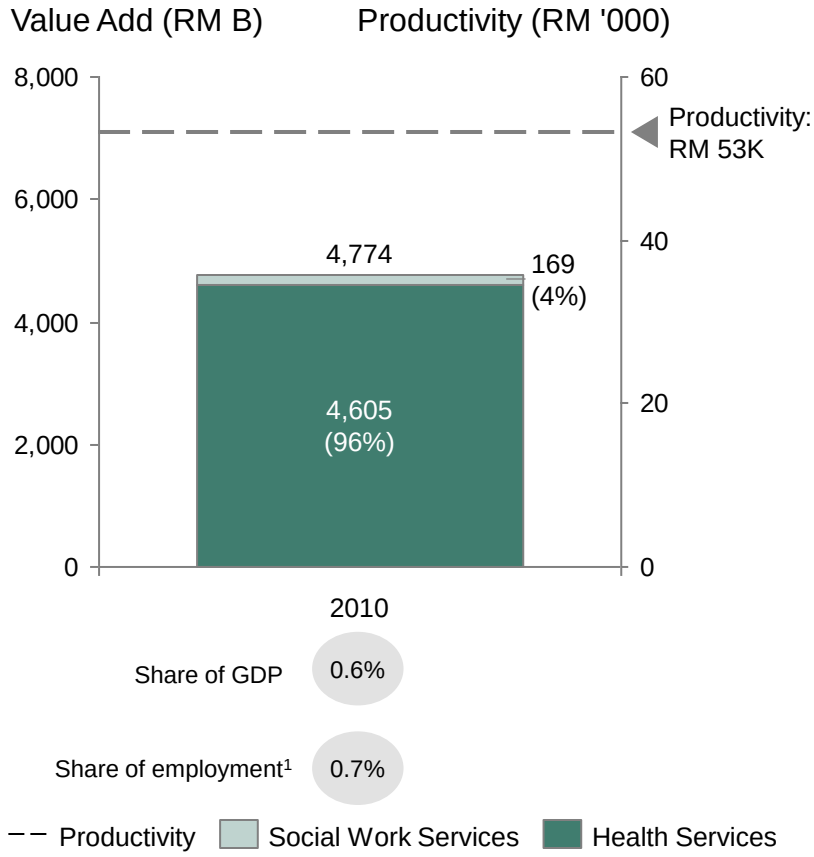
3 Social work activities without accommodation

- Social work activities without accommodation for the elderly and disabled
- Other social work activities without accommodation n.e.c.

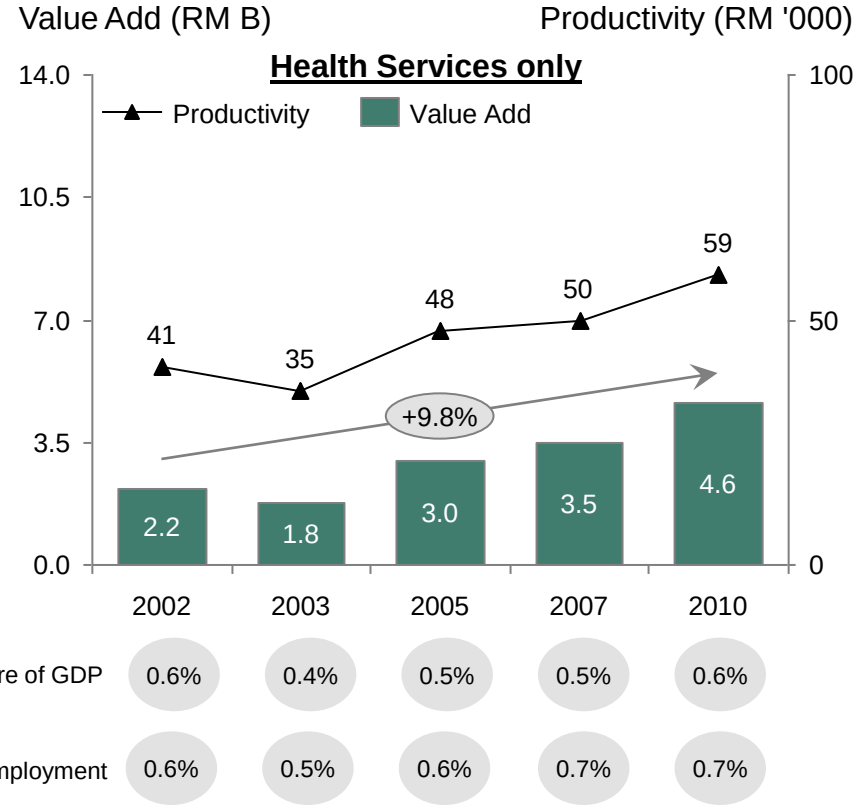
Note: Categorisation is in line with the MSIC 2008 and DOS Healthcare Census
Source: DOS, Healthcare Census 2011

Health Services drives Malaysia's public & private Healthcare, given its significant contribution to value add

Health Services contribute 96% of value add...



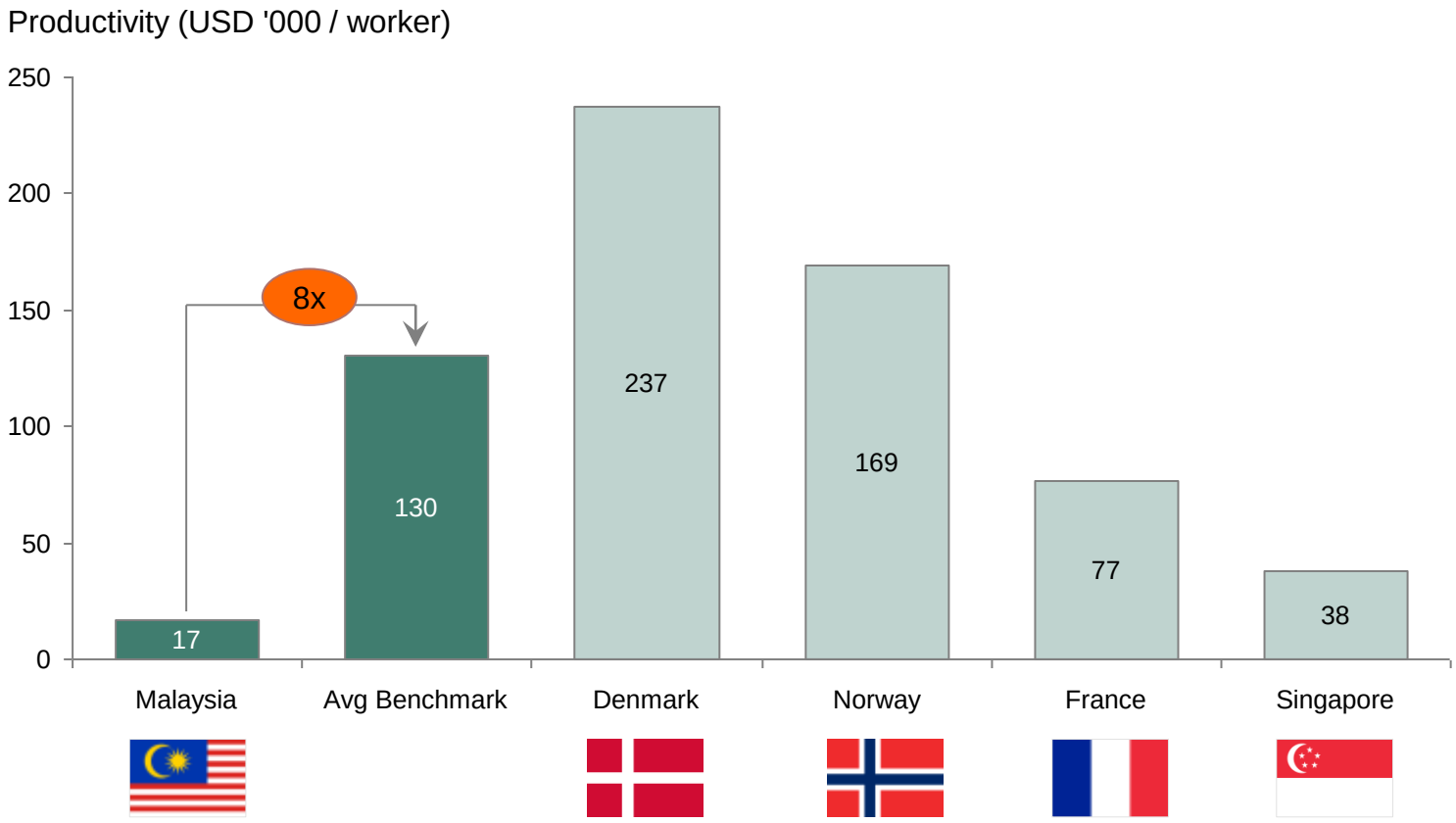
... which has been increasing from 2002-2010, with a workforce of 78K people



1. Share of employment to total employment in Malaysia
Source: Value add and employment figures taken from Healthcare Census 2011; Total GDP from National Accounts (DOS)

Malaysia's public & private Healthcare productivity lags behind benchmark countries by ~8x

Labour Productivity by selected sub-sectors vs. benchmark average

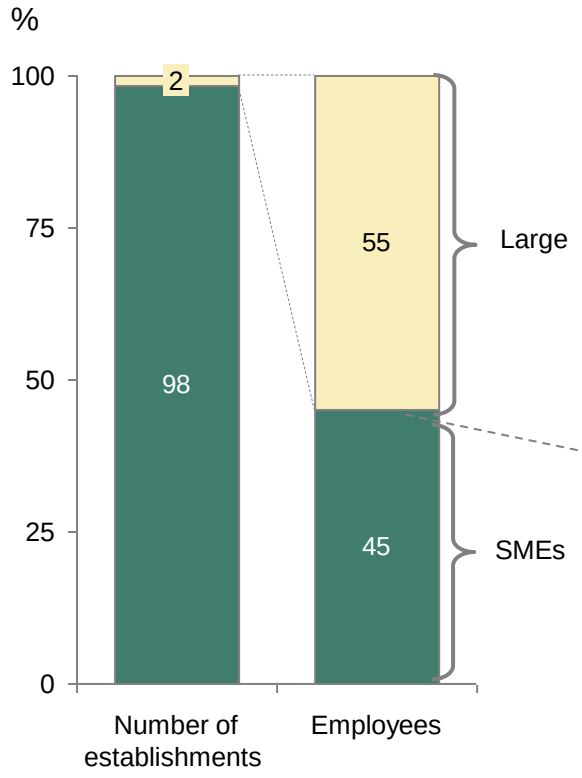


Note: Labour productivity based on constant 2010 prices. All benchmark data except calculated from 2014 prices, except Denmark (2011)
Source: Department of Statistics of respective benchmark countries

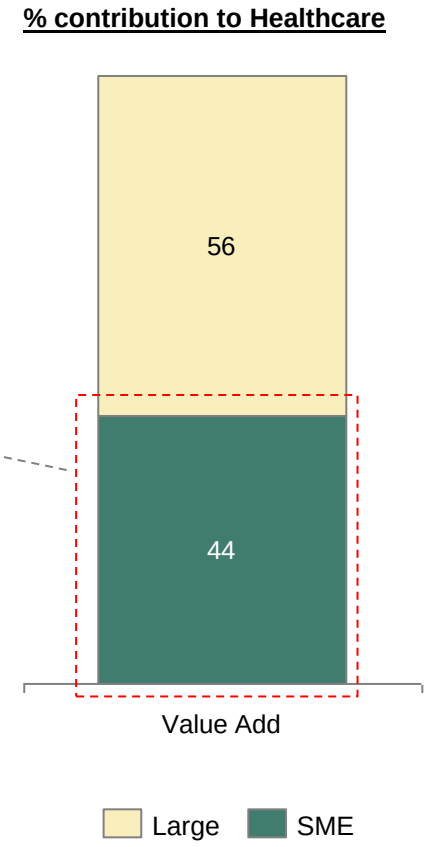
Despite SMEs accounting for 98% of establishments, its productivity levels are relatively similar to large companies

All data shown for 2010

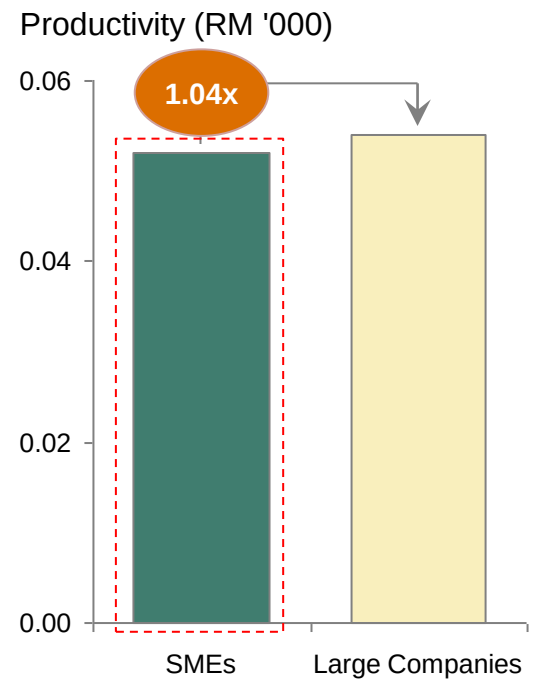
SMEs make up 98% of companies and 45% of workers



But only accounts for ~44% of value added …

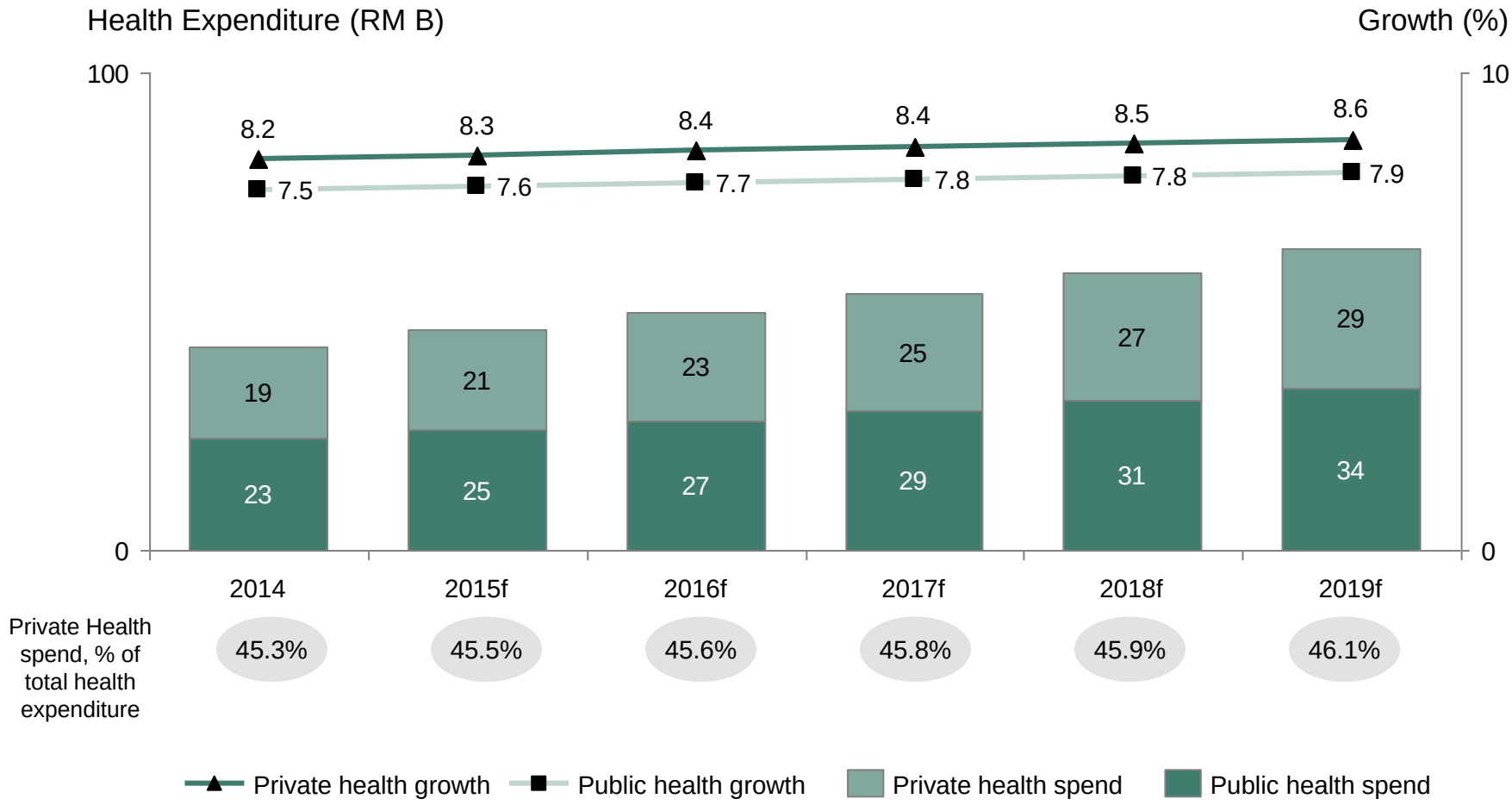


… as SMEs are 1.04x less productive than their larger counterparts



1. Based on total contribution to GDP 2. Sum of rest of subsectors
Note; All data based on 2010 data. SME defined as output size less than RM5m
Source: Economic Census 2011 Health and Social Work Services, MCG analysis

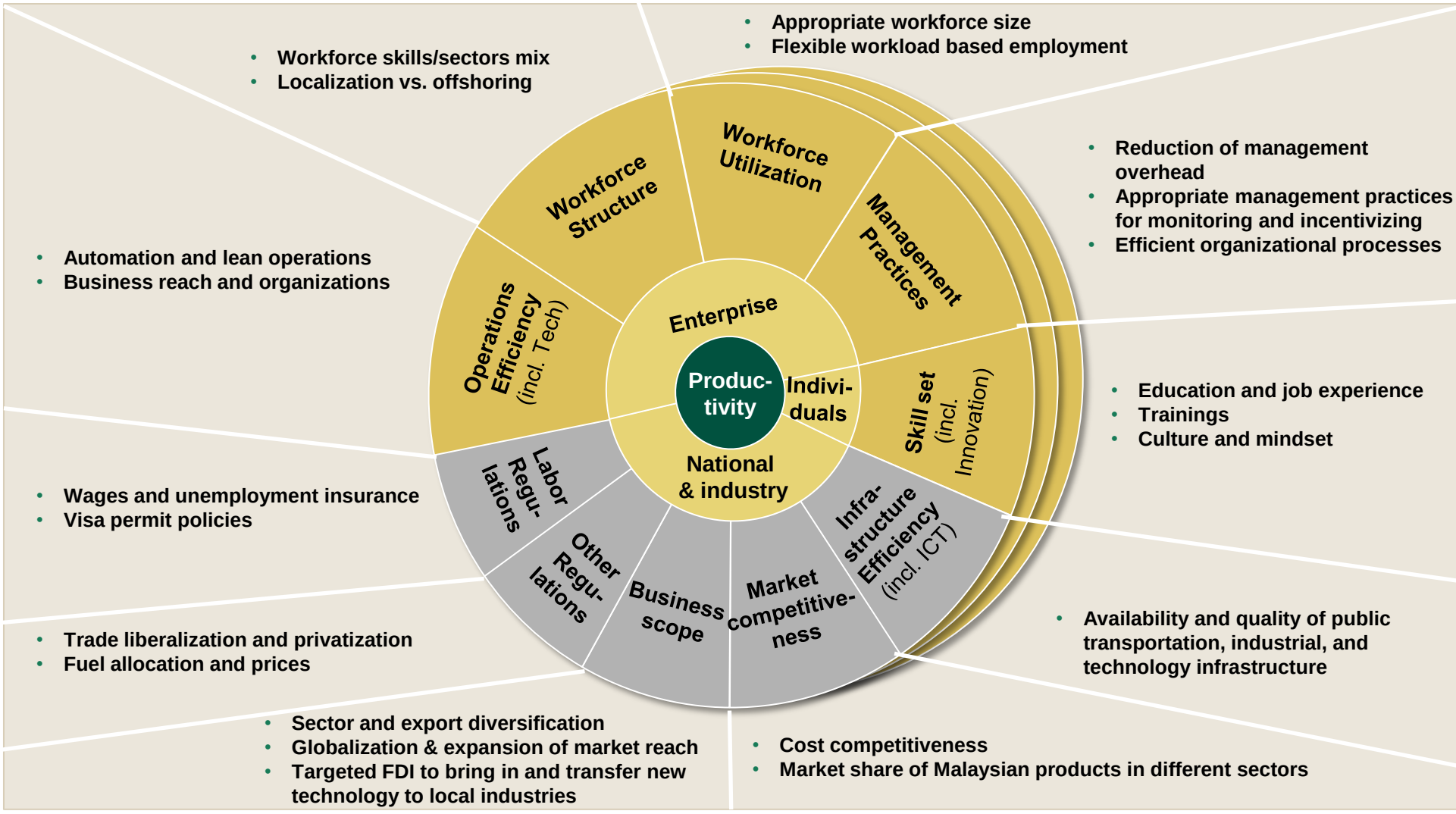
Private health expenditure growth is outpacing that of public health, and is expected to continue



Source: BMI, WHO

Driving Productivity will require programs across three levels

National & Industry, Enterprise and Individuals



Source: MCG framework

There are already plans and initiatives launched, with implications for productivity within Healthcare

	Strategy/ initiatives	Description
RMK-11	Building capacity & capability for internationalisation	Developing private healthcare enhancing hospital capacity, increasing international hospital accreditations, expanding insurance coverage and portability, etc.
	Adoption of lean healthcare initiatives	Improve overall efficiency and overall patient outcome
	Improving Regulatory Framework & Governance	Coordination & streamlining of existing regulations to ensure practicality, removing inefficiencies
ETP	Healthcare travel	Higher integration of value chain through industry collaboration and shared knowledge
	Creating diagnostic services nexus	Foster digitalization and automation of the production process
	Initiatives catered for elderly	Institutional aged care & retirement villages
	Ensure supply of high skilled practitioners	Allowing for specialist training in private hospitals
RMK-10	Expansion of talent pool	To ensure increased supply of high-skilled practitioners
	Ensuring access in rural & underserved areas	Increased connectivity and reach to patients
Govt initiative	Foreign doctors encouraged in M'sia	To ensure supply of skilled workforce
	MOH is considering using performance indicators for regulation purposes	To be confirmed – allows for better transparency to boost competitiveness among health care providers
Co.	Medical platform apps • BookDoc, Door2Door	Increased connectivity between patients & doctors

Are there any others we should be aware of / should refer to?

Source: RMK-11; RMK-10; PEMANDU; MCG Analysis

Six productivity challenges identified in Healthcare based on preliminary inputs

AN 28.Apr.16:

Preliminary

Primary issues

"Why is productivity low?"

1. **Workforce constraints, caused by insufficient talent supply & improper delegation of work**
2. **Weak adoption of ICT infrastructure & challenges in implementing it –** e.g. lack of tech infrastructure to integrate medical documentation and reporting
3. **Inefficient prioritization of care leading to wasted effort with no outcome improvement**– e.g. overinvestment in technologies of little proven value
4. **Medical tourism not capturing high-value customers**
5. **Sub-optimal coordination between private healthcare providers and regulatory bodies** results in delay & unnecessary inefficiencies
6. **Increasing pressure on private healthcare's capacity to deliver services** due to demographic challenges

Priority levers

"Which levers should we prioritize to boost productivity?"

Key productivity challenges for Healthcare (I/V)

Challenges and barriers

Levers Triggered

1

Workforce constraints, caused by insufficient talent supply & improper delegation of work

- **Insufficient talent supply & poor retention of skilled workforce**
  - Shortage of skilled doctors and nurses in private sector
  - Shorter time to specialise & relatively higher pay in other countries, e.g. Singapore
  - Many nurses shifting to public hospitals, drawn by better compensation packages and training opportunities
  - Limited training availability because of workload capacity constraints
- **Improper delegation of tasks may restrict healthcare professionals from maximising their output, as well as increase the risks of medical errors**
  - Highly-skilled medical professionals performing tasks that could be performed by nurses
  - Low-skilled workers tasked to perform high-skilled jobs, which may lead to preventable medical errors

Critical Important Necessary

Source: MPC APR 2014, RMK10, RMK11, MCG Analysis

Key productivity challenges for Healthcare (II/V)

Challenges and barriers

Levers Triggered

2

Weak adoption of ICT infrastructure and challenges in implementing it

- **No integrated portal which stores medical information & performance benchmarks**
  - Limits opportunity for private healthcare providers find targeted solutions to be more competitive
- **Lack of ICT infrastructure in developing countries like Malaysia risks exacerbating increase in flawed health assessments** due to combined challenges of misdiagnoses and missing data
- **Implementation could also be hindered by various challenges:**
  - **Organizational challenge :** whether organizational culture is supportive towards ICT adoption and implementation
  - **People challenge:** whether organizations recruit, select & employ competent human resources to use ICT as tools
  - **Technological challenge:** whether organizations build ICT infrastructures that are efficient & effective

Critical **Important** **Necessary**

Source: Interviews with medical professionals and experts, press search

Key productivity challenges for Healthcare (III/IV)

Challenges and barriers

Levers Triggered

3

Inefficient processes results in preventable delays and errors

- **Failure of providers to adopt widely recognized best medical practices**
  - Duplication of tests and procedures
  - Poor selection of candidates for intervention
  - Overuse of end-of-life salvage interventions that produce minimal increase in length or quality of life
  - Poor infection management, falls prevention , wound care causing longer lengths of stay and readmissions
  - Failure to measure and feedback errors and issues to clinicians so that system doesn't naturally correct itself
- **Inappropriate resource allocation**
  - Highly-trained physicians fill out basic paperwork
  - Rapid uptake of new technologies before their effectiveness has been proven
  - Nurses having to correct supply chain faults and search for missing supplies
- **Process breaks and unnecessary steps**
  - Ambiguous handover during transportation of lab, blood and tissue samples across floors & departments
  - Poor patient flow management in outpatient clinics in hospitals

Critical Important Necessary

Source: Interviews with medical professionals and experts, press search

Key productivity challenges for Healthcare (III/IV)

	Challenges and barriers	Levers Triggered
4 **Medical tourism not capturing high-value customers**	• **Low revenue per patient - not targeting high-value customers** e.g. Singaporeans, and highly dependent on Indonesian tourists (~70%) • **Lack foreign insurance portability :** No G2G arrangements allowing porting • **Malaysian brands not as recognised in developed markets:** No local players with established relationships with foreign hospitals / research institute • **Lack private hospital capacity risks not fully capturing market share of growing foreign tourists**	
5 **Sub-optimal coordination between private healthcare providers and regulatory bodies - resulting in delay & unnecessary inefficiencies**	• **Duplication of information requests –** healthcare occupational licenses are requested during application of operational licenses, despite it being already available within MOH[1] • **Not all approvals fall under the single authority of CKAPS[2]** – Advertisements fall under licensing authority of MAB[3] • **Restrictive regulations on advertisements** limits private healthcare facilities from being competitive. • **No regulations to** to share unified database, for integration across various monitoring and evaluation systems and database	

Critical **Important** **Necessary**

1. Ministry of Health 2. Cawangan Kawalan Amalan Perubatan Swasta 3.Medicine Advertisements Board
Source: Interviews with medical professionals and experts, press search

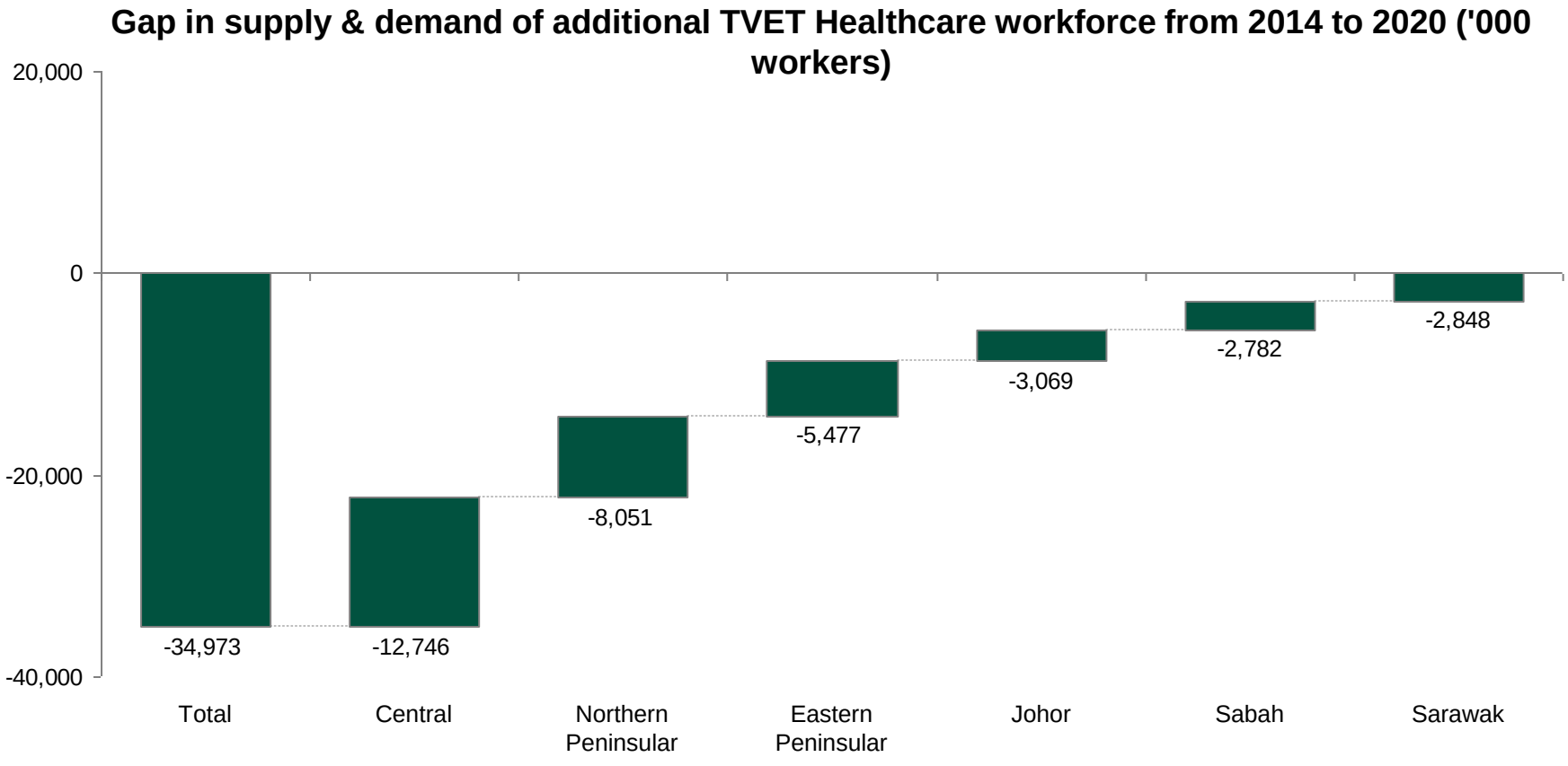
Key productivity challenges for Healthcare (V/V)

	Challenges and barriers	Levers Triggered
6 **Increasing pressure on private healthcare's capacity to deliver services**	• Higher demand for quality healthcare, exacerbated by a foreseeable **ageing population by 2030** • **Increasing incidences of communicable and non-communicable diseases** led to insufficient hospital beds, overcrowding, longer waiting periods and delayed consultation and admission for emergency cases.	

Critical Important Necessary

Source: MPC Regulations Report, RMK-11, Press search

There is generally a lack of TVET[1] workers in Msia's healthcare subsector



1. Technical, Vocaitonal, Educational and Training - for Health and science, electronic engineering (medical)
Source: EPU, Labour Force Survey 2013, ILMIA, MCG analysis, DOS, 2013 JPK & MQA ILKA Audit Survey | 1. MSIC definition includes specialised design activities (e.g. fashion, graphic designers) 2. MSIC definition includes beauticians and hairdressers. Note: Excluded sectors with no TVET programmes identified (i.e. Real Estate and Public Administration). Supply excludes programmes not tied to economic sector demand, e.g. motivational, religious and language courses

Workforce constraints are due to lack of skilled personnel and improper delegation of work

Insufficient talent supply and poor retention of skilled workforce necessary for high-value output

I Long wait to specialise (~15 y) - many leave for Singapore

- Singapore's training programme is continuous, enabling sub-specialisation at a faster rate

II Some trainee doctors not equipped with necessary skills

- Poor English proficiency - 1,000 quit after 2 years

III Many nurses are leaving:

- Public sector offers attractive remuneration & benefits
- Degrees easily recognized in UAE & Singapore, which offers better pay

IV Low training availability due to capacity constraints

- Limited workforce is hindering physicians etc. from attending conferences & seminars
- Limited in-house training wastes time for attendees who would need to travel out

Improper delegation of work also contributes to low productivity

I Doctors tasked to perform low-value work, wasting valuable time

II Low-skilled workers tasked to perform high-skilled jobs, which may lead to preventable medical errors

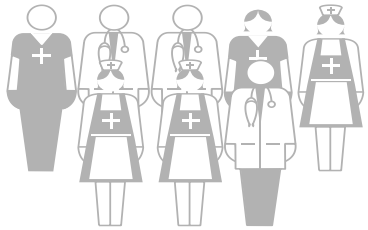
- Insufficiently qualified personnel performing examinations and operating x-ray machines

Source: Interviews with medical professionals and experts, press search

ICT infrastructure adoption and implementation could be hindered by challenges within the organisation

Organizational challenges

*Whether organizational culture is **supportive towards ICT adoption and implementation***



Doctors fear lower no. of patients, e.g.:

- Transparency of benchmarking performance offers patients choice,
- Patient flow information allows patients to choose clinics/hospitals with shorter queue

Quality of care may deteriorate

- Nurses' actions dependent on instructions on screen, not actual condition of patient

Reluctance in changing routine

- Complicated in terms of negotiating individual contracts with doctors
- Management may be averse to high investment costs & privacy issues

People challenges

*Whether organizations employ **competent human resources** to use ICT as tools*

Many healthcare providers do not have capacity to train resources:

- Existing workforce constrained by amount of workload
- Exacerbated by lack of skilled workers in existing workforce

Implementation challenges

*Whether organizations build **efficient & effective ICT infrastructures***

Uncoordinated planning results in various complications:

- Ease of use for all levels of workforce – e.g. technicians
- System compatibility with existing infrastructure
- Lack of physical layout to store infrastructure
- No collaborative effort between IT department and clinician side

Source: Interviews with medical professionals, press search

Lack of strict adherence to widely-recognized best medical practices can lead to preventable delays and errors

Failure of providers to adopt widely recognized best medical practices

Increases risks of complications / re-admissions

No strict adherence to best practices to improve efficiency

- Poor patient flow management in outpatient clinics in hospitals
- Poor maintenance of hospital facilities increases waiting time for medical / surgical procedures
- No proper documentation of patient medical information

Uncoordinated delivery of healthcare services

Wastes nurses' & technicians' time searching for commonly-needed medical supplies

Chain-of-custody issues can arise from undocumented

- Ambiguous handover during transportation of lab, blood and tissue samples across floors & department
- E.g. sterile-processing department did not have insight into current patients' needs – time wasted searching multiple locations for intravenous pump

Excessively high utilisation of tests & procedures

Improper tests takes up too much of time from already strained workforce

Mainly due to high availability of medical resources

- Unnecessary hospitalisation of customers for observation, increasing labour hours to tend for these patients

Source: Interviews with medical professionals, medical research reports, press search

Lack of strict adherence to widely-recognized best medical practices can lead to preventable delays and errors

Failure of providers to adopt widely recognized best medical practices

I. Failure to measure & feedback errors and issues to clinicians so that system doesn't naturally correct itself

II. Duplication of tests & procedures

III. Poor selection of candidates for intervention

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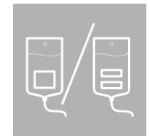
V. Poor infection management, falls prevention , wound care causing longer lengths of stay and readmissions



Inappropriate resource allocation

I. **Nurses having to correct supply chain faults & search for missing supplies**

- Nurses wasted hours searching multiple area for intravenous pump
- Sterile-processing department acted dependently of patients' needs & had no insight into supplies required

II. **Rapid uptake of new tech before its effectiveness is proven** – due to high availability of medical resources

- Unnecessary hospitalisation of customers for observation, increasing labour hours to tend for these patients

Process breaks and unnecessary steps

I. **Ambiguous handovers during transportation of lab, blood & tissue samples across floors, example:**

Pre Test	• Lab results not available
During Test	• Problems with preparation of images, e.g. wrong name assigned
Post Test	• Problems with transport from radiology, e.g. delay, inadequate handover

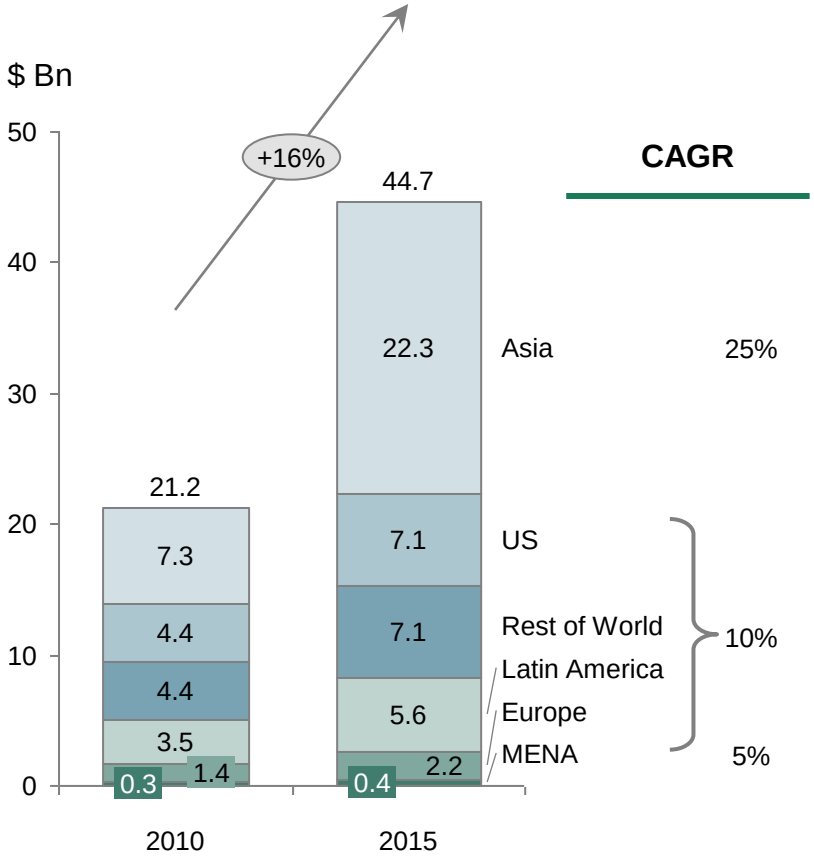
II. **Poor patient flow management in outpatient clinics in hospitals**

- Inability to access medical information quickly – requesting patients to fill up basic particulars which should be pulled quickly from medical records

Source: Interviews with medical professionals, medical research reports, press search

Medical tourism, particularly in Asia, is experiencing high double digit growth

Growth by region



Global and regional growth estimates

Patients Beyond Borders, 2010

- Estimate the **worldwide** medical tourism market is growing at a rate of **25-35%**

Deloitte, 2009

- US outbound medical tourism expected to **grow at 20% in 2009 and 35% in 2010**

Frost & Sullivan, 2007

- Estimated medical tourism market to grow at **19% and Asia at 26%**

Bumrungrad Hospital (Thailand), 2010

- **International patient revenues increased by 23%**, driven primarily by volume growth

BCG, 2010

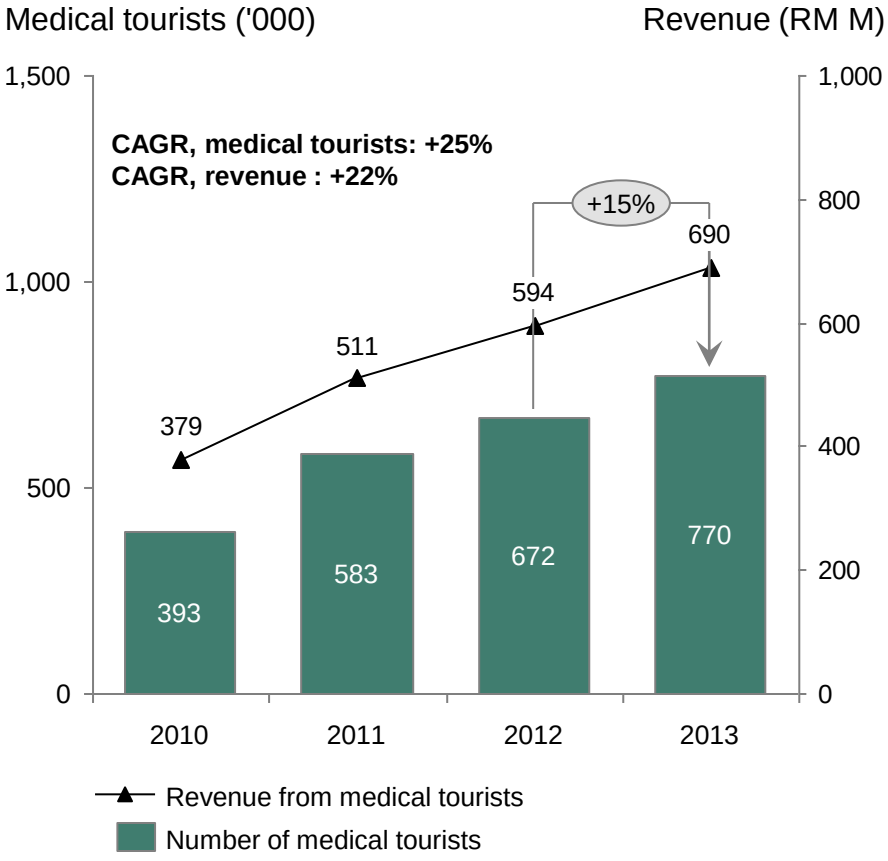
- Inbound medical tourism in the Middle East expected to grow at ~6%

1. Patients beyond borders and others expect growth around 25-355% per annum

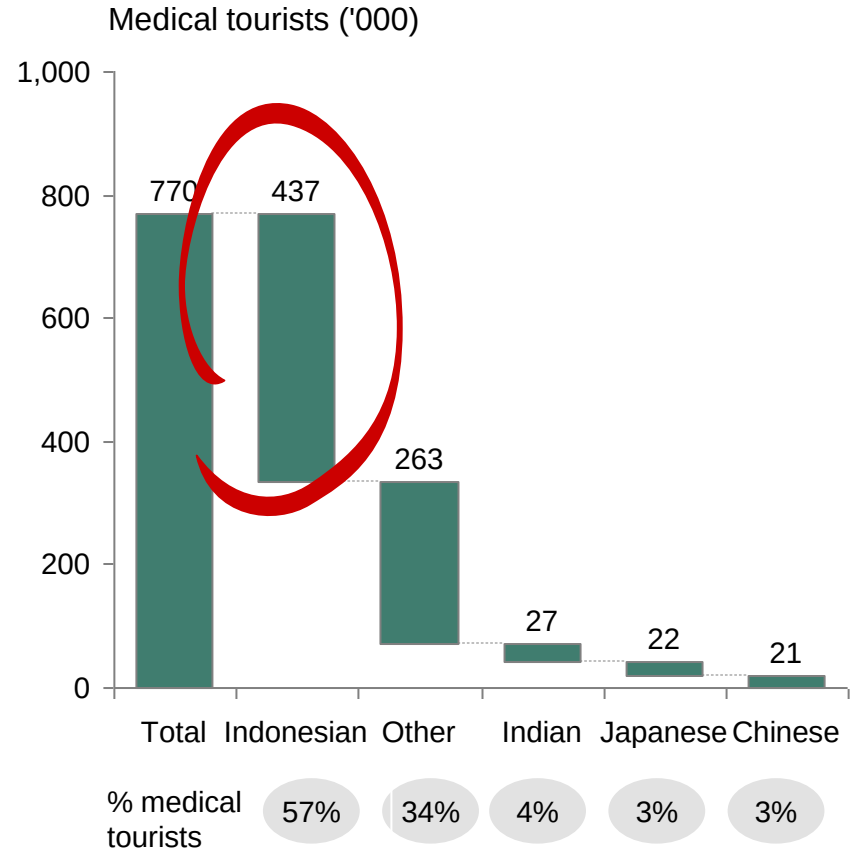
Source: Literature research, Patients beyond borders, MCG analysis

Malaysia is highly dependent on medical tourists from Indonesia, not targeting countries with high-value spend

Significant increase in medical tourists in 2013 by 15% ...



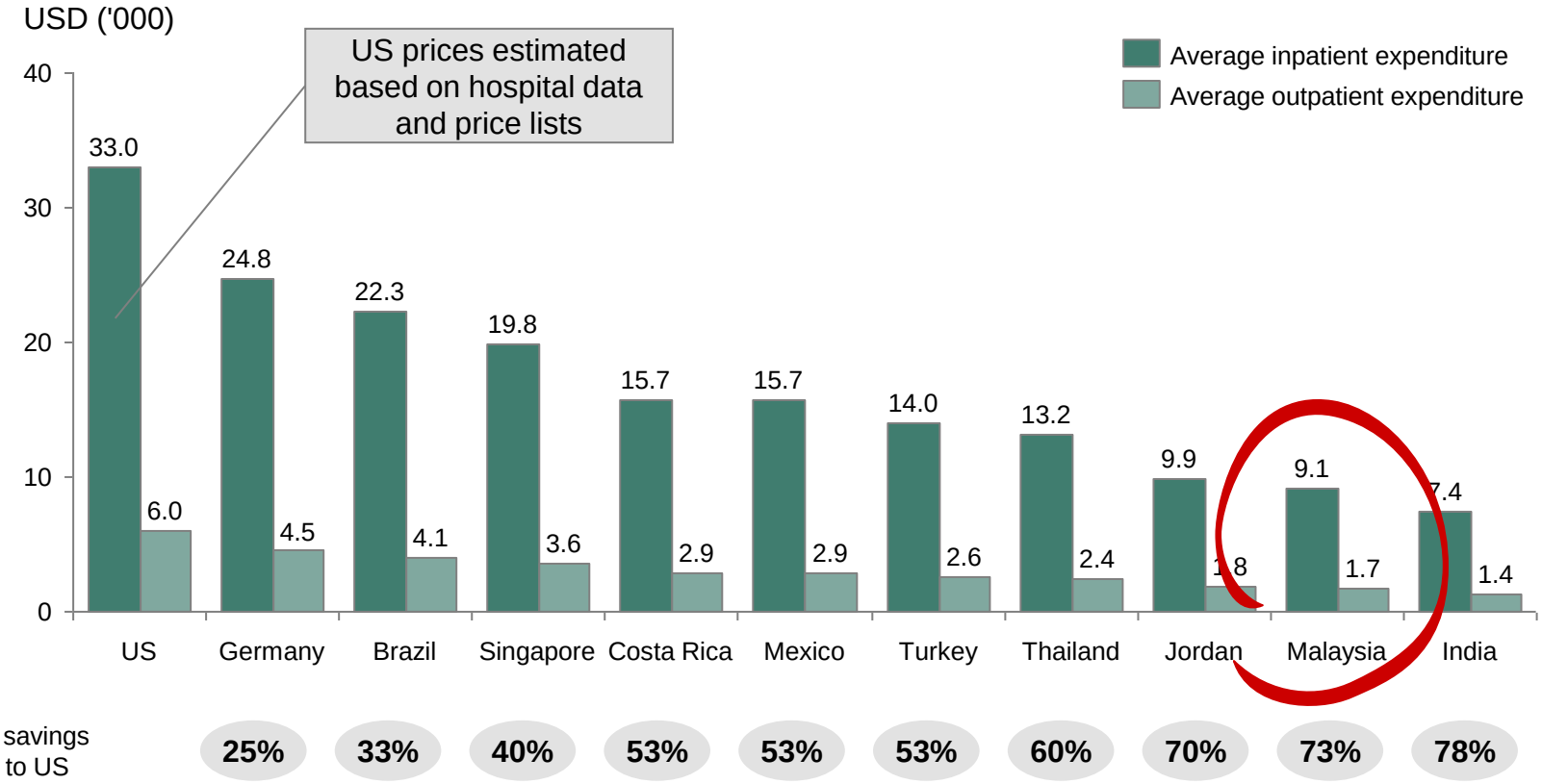
of which 57% are from Indonesia



Source: Malaysia Healthcare Travel Council; BMI; MCG Analysis

In fact, Msia's packages are catered to low-value tourists, and is one of the cheapest compared against US

Inpatient and outpatient prices



Source: Patients beyond Borders, Hospital price lists, Medical Tourism Association, MCG analysis

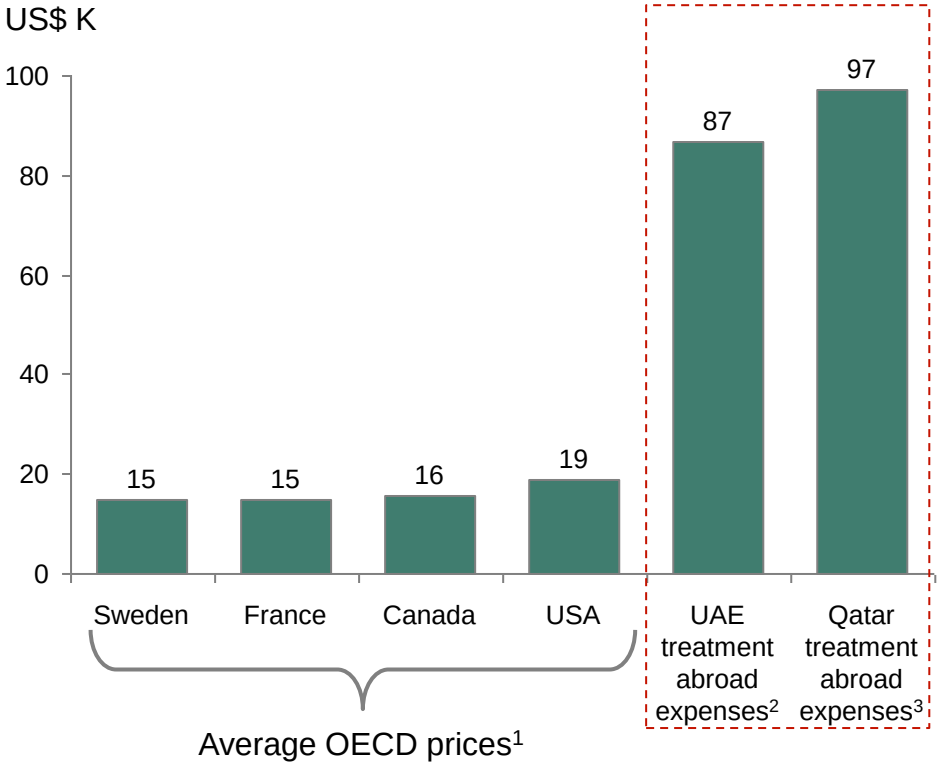
There is opportunity for Malaysia to target high-value tourists from MENA by augmenting service provided

	Typical Origin	Reason for visit	Price sensitivity
Quality	 Middle East and North Africa, less developed Asian countries	Patients seeking **higher quality of care and service** not available in their home country	***Highest pricing power for providers***
Cost	 United States	Uninsured or underinsured who cannot afford US cost Insured looking for cheaper treatment options	
Access	 Publically driven systems (EU, Canada, Australia)	Patients placed on the waiting list for certain procedures	

Patients from the Middle East willing to pay for quality care

Priced considerably higher than average in OECD countries

Comparison of average inpatient prices across selected countries



Quality matters

Selected Quotes from interviews with UAE institutions

- *"First we think about patient satisfaction"*
- *"Patients care about quality, how doctors and nurses treat them (service levels) and location"*
- *"Final choice on location is with patients to prevent us being blamed if anything goes wrong..."*

"...For military, it's all about providing a certain level of outcome, price is not the issue..."

- *"Budget is fixed but if there is a need to extend, it's fine. There is desire to accommodate healthcare needs, within reason of course..."*

1. Average based on OECD price comparison of selected IP procedures 2. Average cost of procedures in US, UK, and GER (top MTA locations); 3. Qatar data is for UK hospitals only
Source: OECD, IPC, BCG

Backup

Coordination in adherence & implementation to regulations is lacking, resulting in resulting in delays & inefficiencies

MPC study revealed that coordination efforts within regulator not streamlined

I Duplication of requests during license applications

- Healthcare occupational licenses requested during application of operational licenses, despite it being already available within MOH
  - Malaysian Medical Council
  - Nursing Board
  - Malaysian Dental Council
  - Malaysian Pharmacy Board

II Not all private healthcare applications fall within purview of CKAPS[1]

- Advertisement approvals are currently looked after by the Medicine Advertisements Board

While restrictions are necessary for patient safety, existing regulations are too restrictive

I No level-playing field for GPs and standalone clinics

- Unlike hospitals, Individual doctors aren't allowed to advertise in any form
- Health facility advertisements as a business entity allowed, but ads of a doctor/his practice as individuals are not

II Limits competitiveness domestically & internationally

- Patient testimonials not allowed, which are an important determining factor for medical tourists
- Even fact-based information about specialists' background & experiences are not allowed

Restrictions apply to any notice, circular, report, commentary, pamphlet, label, wrapper, or other document and announcement
- Medicines (Advertisement and Sale) Act 1956

1. Cawangan Kawalan Amalan Perubatan Swasta (Private Healthcare Control Branch
Source: MPC Regulations Report, RMK-11

Private healthcare may face risks of service constraints, due to foreseeable increase in demand in the near future

M'sia to become ageing population country by 2030[1] ...

Health issues of the elderly demanding higher attention as population ages

Healthcare systems forced to become more efficient

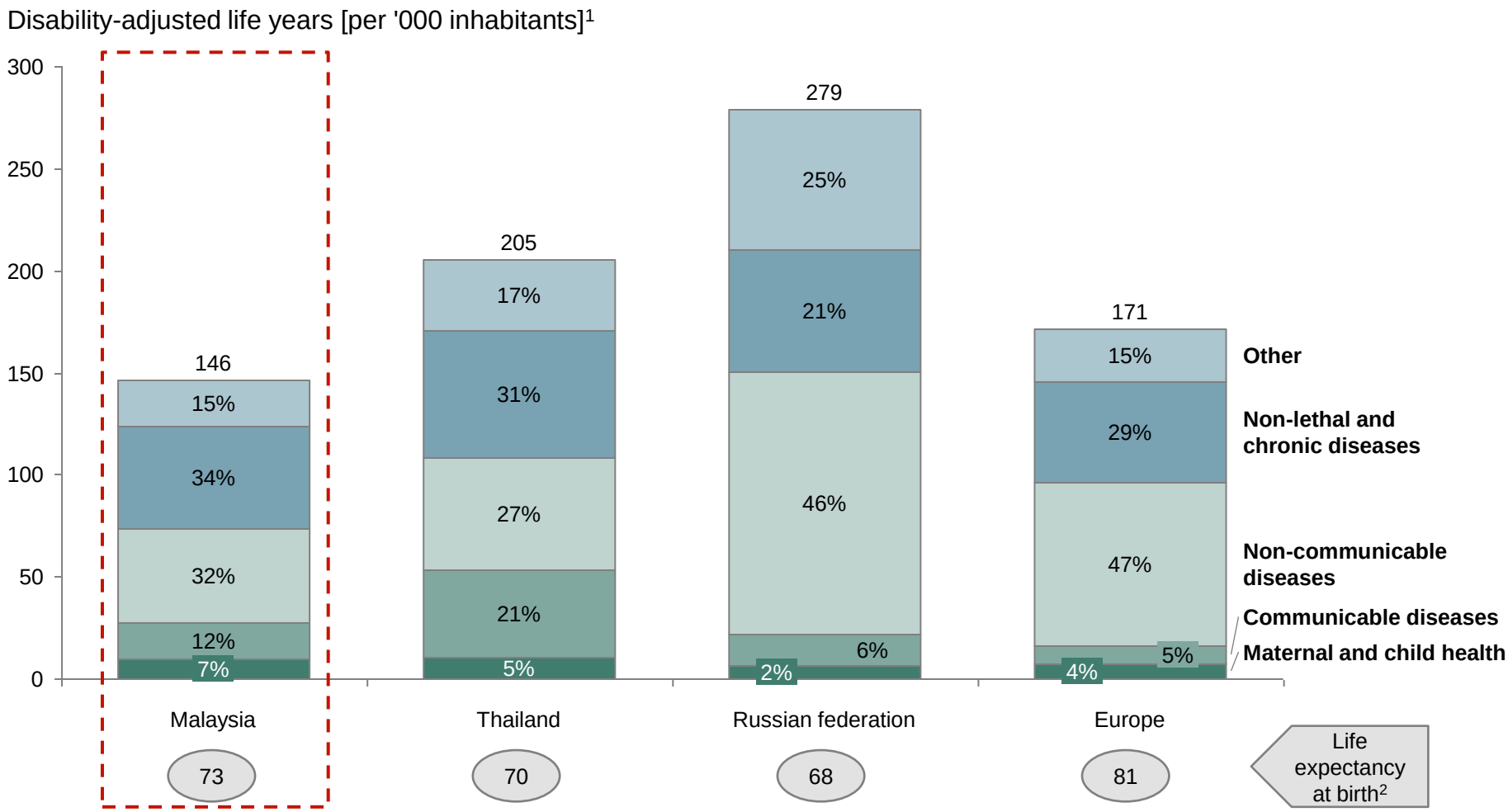
- Aging population resulting in decreases in ratio of working/elderly population
- Leading to fewer people actively funding health
- Deteriorating ratio of active HC professionals to potential patients

... which creates new health challenges

I	**Increased strain on healthcare system**	• By 2020, healthcare spending is projected to triple in real dollar –
II	**Strain on resources**	• Lack of resources (in terms of skill and absolute workforce)
III	**Increases prevalence of NCDs[2]**	• Currently low focus on NCDs, with typically late stage detection and treatment • Increases in life expectancy and income levels to drive rising incidence of NCDs, forcing higher attention

1. 15% of population consisted of those aged 60 years and above (National Policy for the Elderly) 2. Non-communicable disease
Source: EIU; WHO; MOH; RMK10; MCG analysis

This is further strained by Msia's challenge in dealing with non-communicable, non-lethal & chronic diseases



1. DALY measures number of years lost due to ill-health, disability or early death, 2008 WHO data 2. 2009 WHO data
Source: WHO; MCG analysis

Agenda

Time	Session		PIC
0830 - 0900	Arrival and registration		
0900 - 0930	**Project context** - Why have we embarked on this project? - What does this project entail?	P	EPU/ BCG
0930 - 1030	**What productivity means for this subsector** - Why is it important? - Gap vs RMK 11 target and benchmarks - Our approach and initial views (challenges and existing plans)	P	BCG
1030 - 1045	Tea break		
1045 - 1145	**Breakout session #1: Verify critical challenges and drill down to root causes**	G	Participants
1145 - 1215	Recap to the room		Participants
1215 - 1315	Lunch break		
1315 - 1345	Best practices from around the world	P	BCG expert
1345 - 1445	**Breakout session #2: Brainstorm and prioritize productivity improvement initiatives going forward**	G	Participants
1445 - 1500	Tea break		
1500 - 1530	Recap to the room		Participants
1530 - 1600	Closing remarks and next steps		BCG

P ***Presentation*** G ***Group discussion***

Roundtable discussion I: Key productivity challenges

Part 1: Outline key levers to improve productivity

Have a look at the wheel and identify which lever is most critical for your sector?

- National & industry level
- Enterprise level
- Individual (worker) level

Let's discuss and agree on key levers

- Critical
- Important
- Necessary

Please rank the relative importance of levers from 1-10 (1 most important)

20 minutes

Part 2: Detailing out the challenges

Let's focus on prioritised levers 1-5

- What are the key challenges faced within your sector for prioritised levers #1, 2...?
- How do these challenges impact you?
- What is the root cause of this challenge?
- What has already been done to address this?
- Why does this continue to be a challenge despite existing initiatives?

40 minutes

Output: Key productivity challenges

Lever	Productivity challenge	Implication	Priority (H, M, L)
Text	Text	Text	Text

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P ***Presentation*** G ***Group discussion***

Case study: One of the most advanced electronic health systems, backed by strong government support

Government's initiatives helped to improve Denmark's hospitals productivity

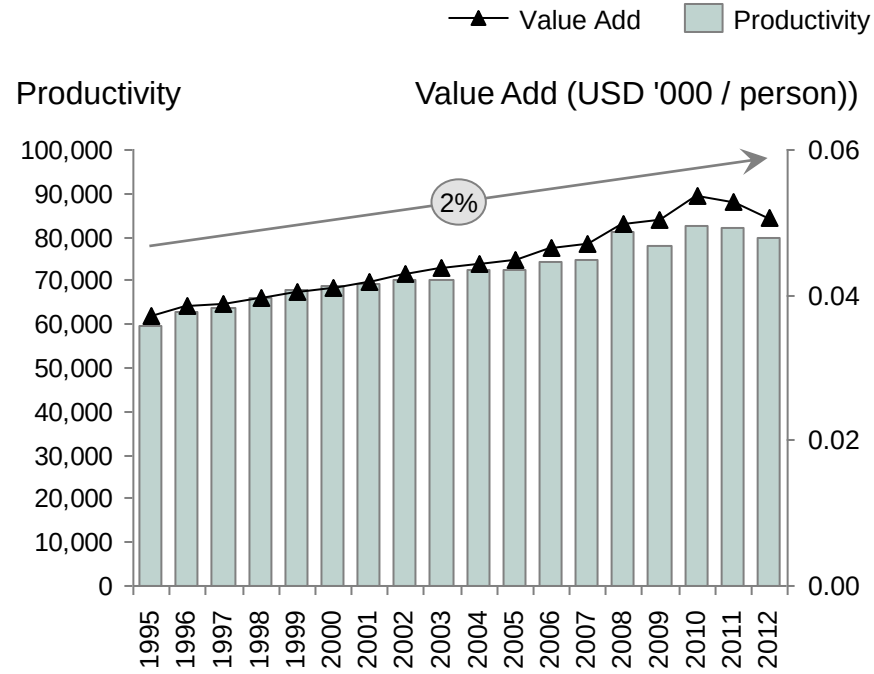
Expansion of e-health initiatives helped Denmark achieve the shortest average length of stay in hospital per patient in EU – 3.7 days in 2012

- **Champion in telehealth solutions**
  - First country to establish national standards for interoperability of personal health technologies
  - Meet demographic challenges with ageing citizens & patients with chronic disorders ,
- **Central 'e-Health Portal' info repository**
  - Transparency bolsters competition
  - Giving healthcare professionals in hospitals quick access to any patient's data and test results

E-health initiatives used to improve effective governance and management practices

- **Danish Safer Hospital Programme:** Systematic approach for healthcare professionals to measure & track whether quality care is provided
  - Real-time data identifies improvement opportunities
  - Reduces preventable errors and readmissions
  - More efficient use of resources from time saved
  - In 3 years, 5 hospitals increased no. of patients receiving complete range of recom. treatment by 5x

Danish hospital productivity has been at a stable +2% CAGR over last 20 years



Source: Danish data form Statistics Denmark

We have identified 4 main levers of best practices to improve overall productivity

		Best practices
1 ORG & DIVISION OF WORKFORCE	**Skill-set sustainability**	• International collaborations with institutions for sufficient skill support • Role & coaching of MDs in training • E-learning for nursing staff
	Workforce optimisation to address labour constraints	• Enhance skill-mix • Huddle system to identify issues & fix issues or escalate it efficiently • Revamp medical equip & supplies department's work structure • Patient-led support can free up resources for more pressing matters
	Effective governance for value	• Incentives for doctors & hospitals who deliver outcomes, not just activity • Advisory board of hospital chains benchmarks performance
2 ICT INFRA-STRUCTURE	**Central repository of information fosters competition & allows better management of turnaround times**	• Electronic requesting systems • Web-based publication and publication of outcomes data • Telemedicine and wearables
	Other innovative infrastructure helps to free up resources	• SMS-based medication reminders for patients • Provision of tablets and smartphones for doctors
3 DESIGN, PROCESS & LOGISTICS	**Optimising design and operational processes can improve process flow**	• 'Barn operating theatres' reduces time between patients and increases savings on overall floor space • Using alphanumeric locks instead of keys • Revise referral process to capture time savings • Traffic segregation reduces heavy traffic, maintenance costs
4 MEDICAL TOURISM	**Target high-value medical tourists**	• Gain exposure – strong participation in international medical tourism • Relax strict advertising regulations • Comprehensive e-portal

Example initiatives to improve Healthcare productivity (I/VII)

Skill-set sustainability

Preliminary

Best practices

International collaborations with education institutions for sufficient supply of skilled labour

- Research and education: Hallym Univ Medical Center (S. Korea) sends students to its US partner institutions
- US physicians participate in research projects in South Korea

- **Consultation & advisory:** US' Partners Harvard Medical International aimed at international collaboration - advises India's Wockhardt hospitals on dev. of high-quality clinical programs

- **Management agreement:** John Hopkins Hospital oversees operations at executive level at Punta Pacifica Hospital
  - Provides educational and consulting support

Role & coaching of MDs in training

- Reinforce support and coaching for MDs in training by designating contact points for each activity and at each moment (e.g., during ward rounds, consultations, night shifts)

E-learning for nurses ensures competency and reduces need for time away from patients

- VITAL[1] saved 65,000 hours of hands-on nursing care and £833,000

Levers Triggered

Critical Important Necessary

1. Virtual Interactive Teaching and Learning
Source: Interviews with experts, press search

International collaborations can facilitate build-up of capabilities

Singapore's NUS[1] partnered with Yale to tap onto its expertise in liberal arts education

Yale University YaleNUSCollege NUS

Singapore's Yale-NUS College's objective is "to offer a model of residential liberal arts education *not currently available in Asia"*

Transfer of various forms of "technology", from curriculum ...

- Collaborative cutting-edge research, material
- Access to world renowned professors

... to pedagogical best practices

- Emphasis on discussions, with smaller classes
- Guaranteed opportunity for every student to study abroad or intern overseas

Benefits of cross-border collaboration are two-way, and impact professors, students and companies

Korea's Asan partnered with international organizations to learn healthcare best practices

ASAN Medical Center PARTNERS HARVARD MEDICAL INTERNATIONAL

Asan Medical Center's extensive partnerships have played an integral role in its internationalization journey, e.g. collaboration with PHMI[2]

Asan employees attend PHMI observer programs in Harvard Medical School-affiliated teaching hospitals

- Learn international healthcare best practices

Asan and PHMI jointly organize biennial international symposiums in Seoul

- Thought leaders from the US, Korea, and neighboring Asian countries share cutting-edge research, practice

Partnership allows Asan to benchmark its clinical services against PHMI and partner hospitals

Cross-fertilization of worldwide best practices help to raise overall standards

1. National University of Singapore 2. Partners Harvard Medical International, an international healthcare organization with close links to Harvard Medical School
Source: World Bank-EPU Services Sector Blueprint, Yale-NUS College, Asan Medical Center, BCG

Example initiatives to improve Healthcare productivity (II/VII)

Workforce optimisation to address labour constraints

Preliminary

Best practices

Review delegation of work to free up resources and address medical workforce constraints

- Doctors not tasked to do lower-skilled work (X-rays, phlebotomy, etc.)
- Nurse-led clinics for minor ailments
- Patient-led support for sufferers of chronic diseases

Huddle system to quickly identify issues & fix / escalate it efficiently

- Quick morning huddles to identify and solve issues – with front-line clinical areas,[1] clinical and nonclinical ancillary areas
- Unfixed issues escalated to patient flow huddle & integrated huddle.
- Impact: Identified 39 complex issues/month, with median time to resolution of 5.5 days

Revamp medical equipment and supplies department's work structure

- Effective communication between nurses/technicians & supplies dept
  - Weekly staff meetings to anticipate supply requirements
- Standard-equipment order sets for high-volume & equipment-intensive surgical procedures – e.g., hip & knee replacement
- Implement hospital-level measures of supply dept's performance which incorporates internal customers' perspectives (vs. commonly-used actual-to-budgeted labor expenses)

Critical Important Necessary

Levers Triggered

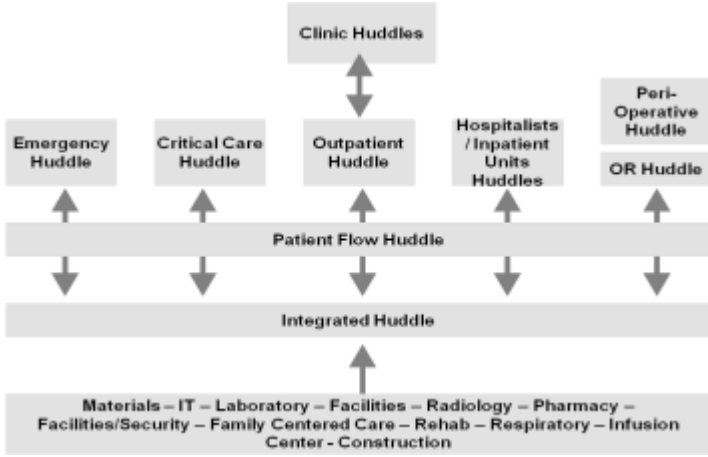
Source: Interview with experts, press search

Tiered huddle systems are a great way to for workforce optimisation to address labour constraints

Tiered huddle system used to quickly identify issues & fix / escalate it efficiently

- **Quick morning huddles** to identify and solve issues –
- Issues identified on visibility boards, which helps expose situations in which expectations differ from reality
- Unfixed issues escalated to higher-tiered huddles, where solutions will be brainstormed

Illustrative: Huddle system of American hospital



- **Impact:** Identified 39 complex issues/month, with median time to resolution of 5.5 days

Structured system enables for effective communication & execution

1 Tier 1 — Front-line clinical & support area huddles
- Creates accountability & ownership
- Responsibility to solve own problems whenever possible
- Unfixed issues escalated to patient flow huddle & integrated huddle

2 Tier 2 — Patient flow huddle
- Attendees from various front-line huddles raises issues re. patient flow, e.g. outpatient clinic load

3 Tier 3 — Integrated huddle
- Representatives from front-line huddles & support areas (HR, finance, etc.)
- Countermeasures of issues from frontline huddles identified

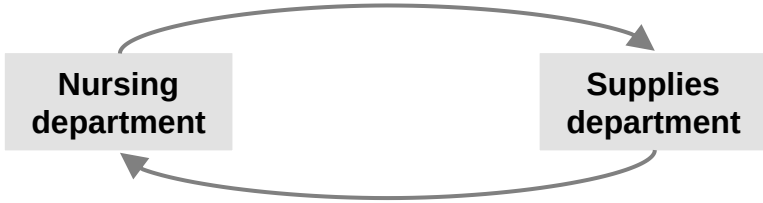
4 Communicate counter-measures to frontline huddles for quick execution

Source: Radiological Society of North America

Workforce optimisation to address labour constraints

Pre-emptive communication between departments reduces time wastage

Effective, weekly communication of supply requirements based on patients' needs...



... helps pre-empt and align supply department's work routine

1. **Assign responsibility to physician / highly skilled nurse** for determining materials & equipment patients require at start of the day
2. **Prepare standard-equipment order sets**
   - For high-volume & equipment-intensive surgical procedures – e.g. hip & knee replacement
3. **Implement hospital-level measures of supply dept's performance** which incorporates internal customers' perspectives (vs. commonly-used measure of actual-to-budgeted labor expenses

Self-management tools can free up resources for more pressing matters

Chronic Disease Self-Management Programme

- Patient education programme targeting heart disease, lung disease and diabetes type 2
- Self-monitoring frees up physicians' and nurses' time from re-admissions
- In Denmark, self-management training is provided either in outpatient clinics' associated with the hospital,

Source: Harvard Business Review

Example initiatives to improve Healthcare productivity (III/VII)

Effective governance structure

Preliminary

Best practices

Value-focus oriented: Incentives for doctors & hospitals who deliver outcomes, not just activity

- **Quality registries** used in Sweden to drive care improvement
  - 50% reduction in mortality following AMI in one year
  - Transparency also help to increase compliance to care guidelines

- **Accountable Care Orgs (ACOs)** – network of doctors and hospitals, sharing financial & medical responsibility of providing efficient service
  - ACOs may opt to pay penalty if it doesn't meet performance benchmark

Advisory board of hospital chains practices benchmarking of each hospital's performance

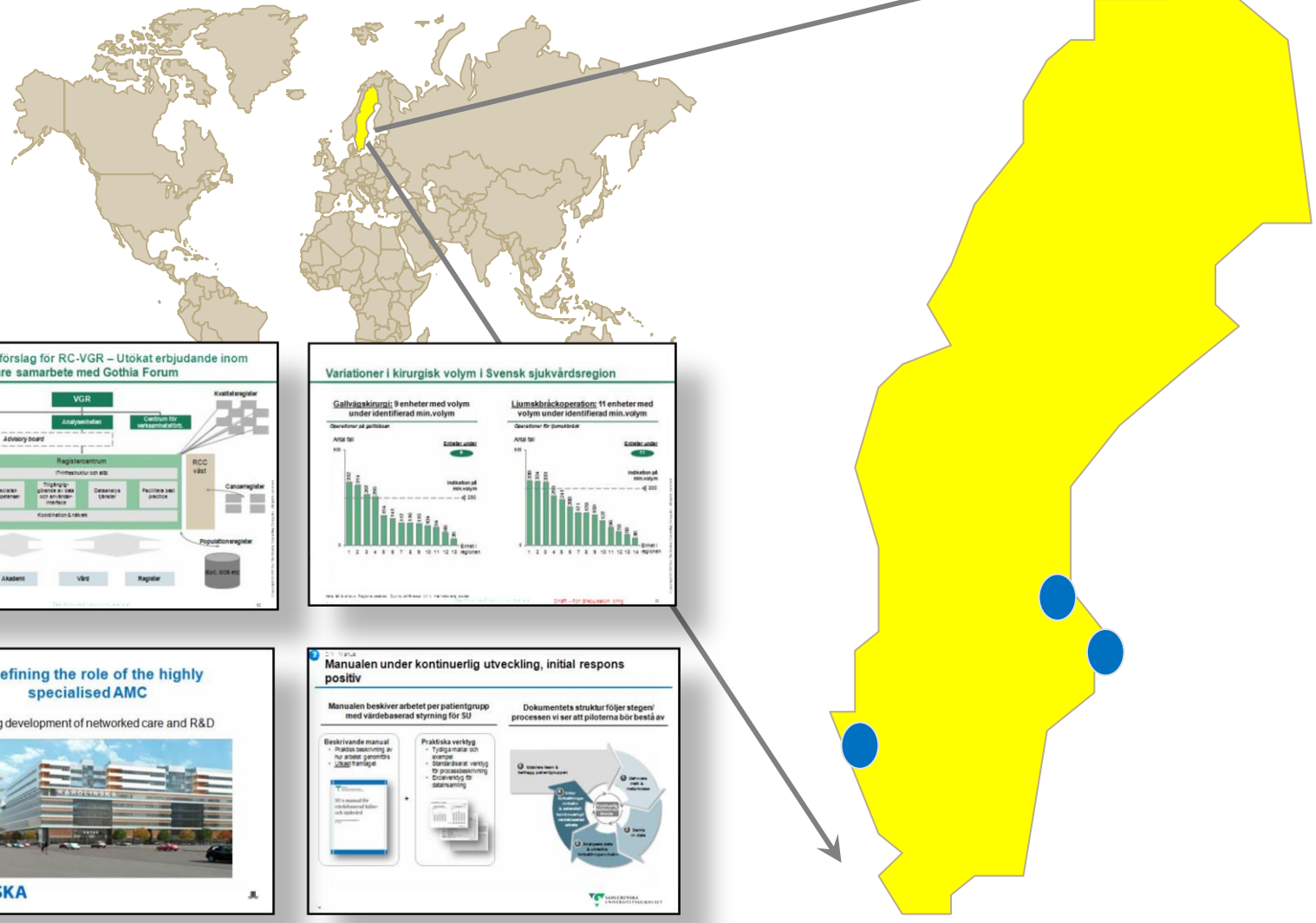
- Hospital chains Helios demonstrated reductions in in-hospital mortality
- Any 'sub-par' results triggered a peer review with a view to improving their treatment processes.
- Operating as a chain allows hospitals to reduce functioning costs and achieve efficiencies:
  - Centralising a number of support services e.g., quality management, accounting and finances, procurement, HR

Critical Important Necessary

Levers Triggered

Source: Interviews with experts, press search

The Swedish HC system has a Value focus

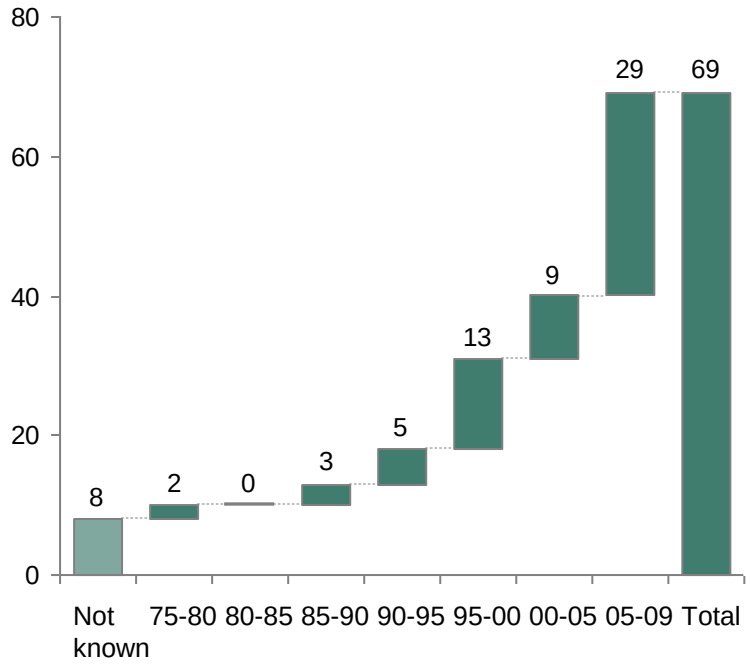


Sweden uses quality registries to drive care improvement

Strong position in quality registries 2009

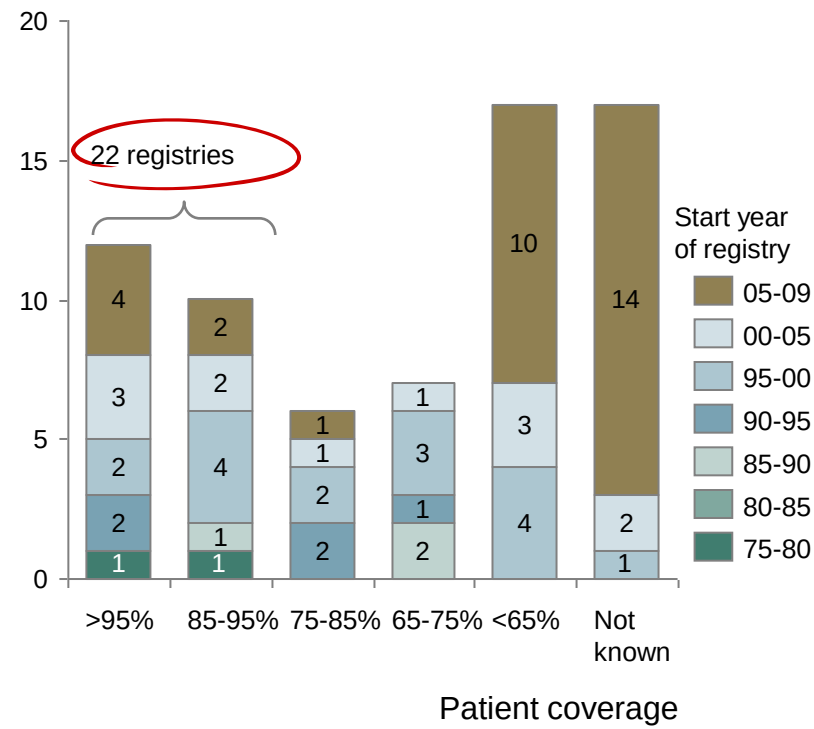
69 quality registries started to date[1]

Quality registries by start year
(# of registries)



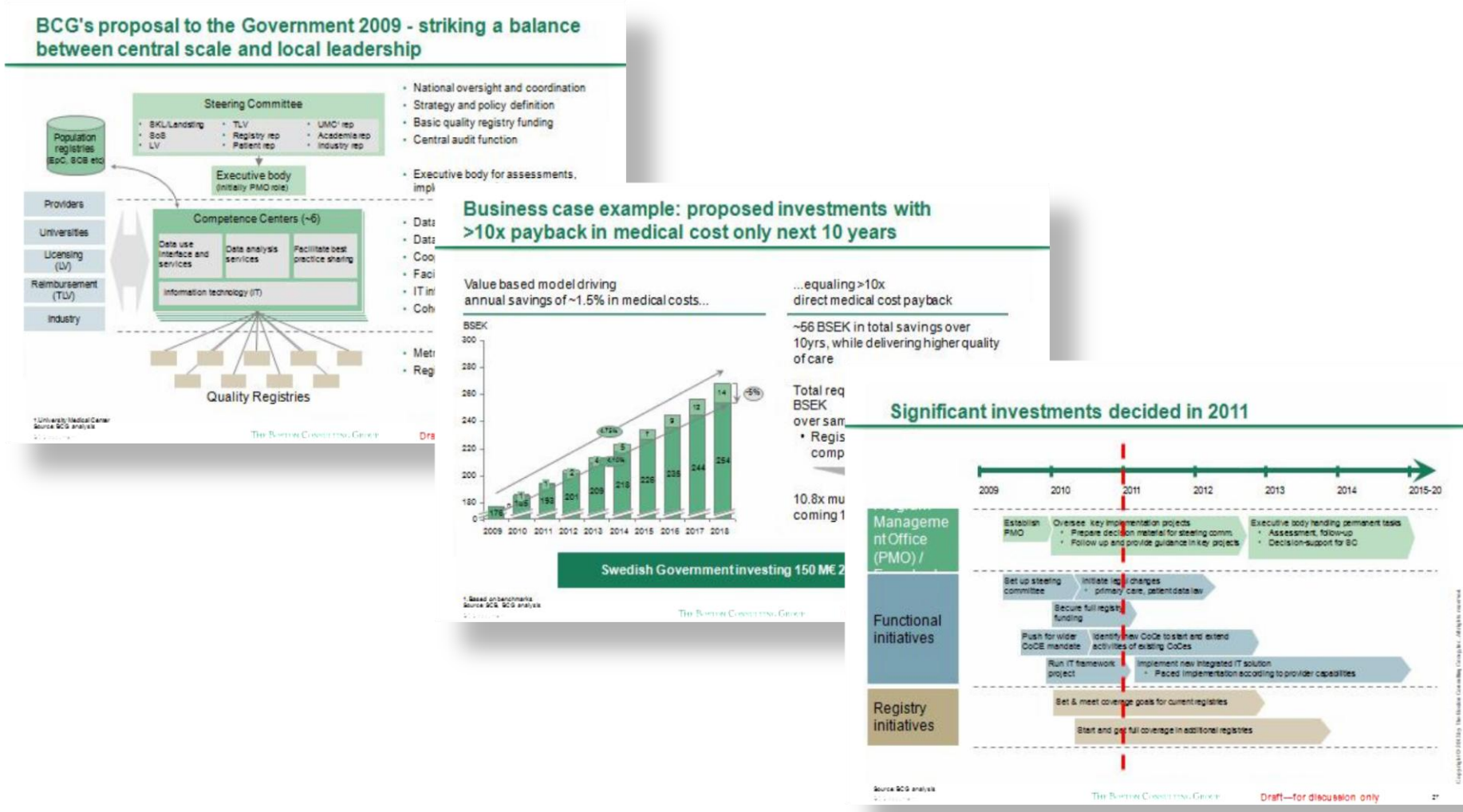
>20 registries with >85% patient coverage

Quality registries by patient coverage, start year
(# of registries)



1. Only including registries receiving funding from SKL
Source: "National Healthcare Quality Registries in Sweden 2007"; Grant applications; MCG analysis

National strategy for Swedish registries in Aug 2009



50% reduction in mortality following AMI in one year

Changes in clinical practice following national publication of hospital outcomes data

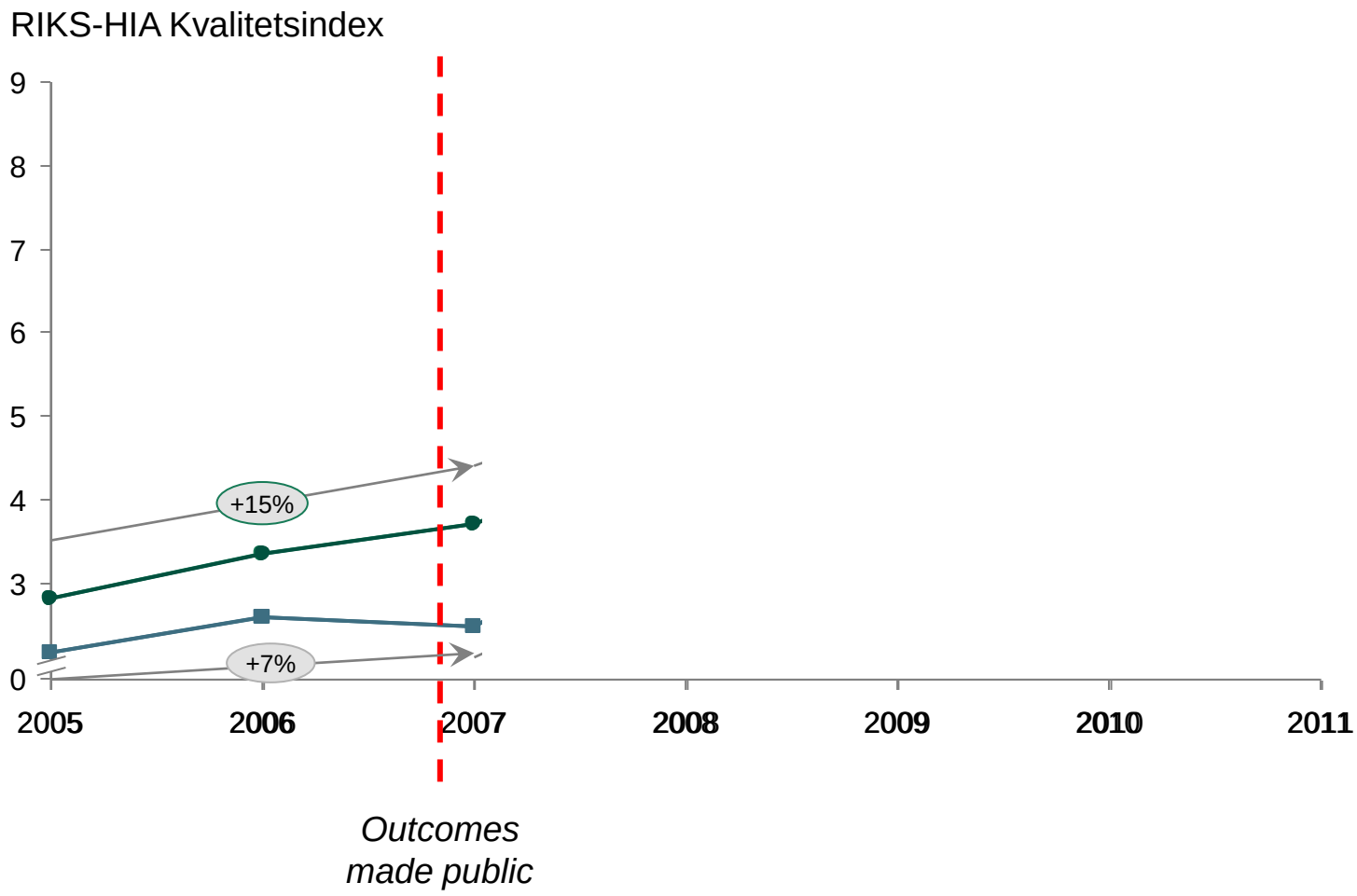
	Before		After
Karlstad central hospital	***Ranked #43 of 73 hospitals*** 	• Care cycle redone • PCI[1] - unit established • Emergency care expanded to 24/7 coverage	***Quality index[3] raised from 1 to 8, 30-day mortality reduced by 50% Ranked #22*** 
Halmstad hospital	***1 year mortality 20%, ranked #68 of 73 hospitals*** 	• Care aligned with national treatment guidelines[2] • New specialist departments for specific coronary conditions started • Staffing improved	***Quality index raised from 1 to 4 Mortality reduced by 50% Ranked #45*** 

1. Percutaneous coronary intervention 2. on angiography and PCI 3. Riks-HIA

Source: SVT.se; Aftonbladet 2007-03-08; DN 2009-05-06; Dagens Medicin 2008-08-26; Läkartidningen nr 44 vol. 104, 2007; Värmlands Folkblad 10 Oct 2007

Transparency increases compliance to care guidelines

Example: Registry data for myocardial infarction



Källa: Swedeheart

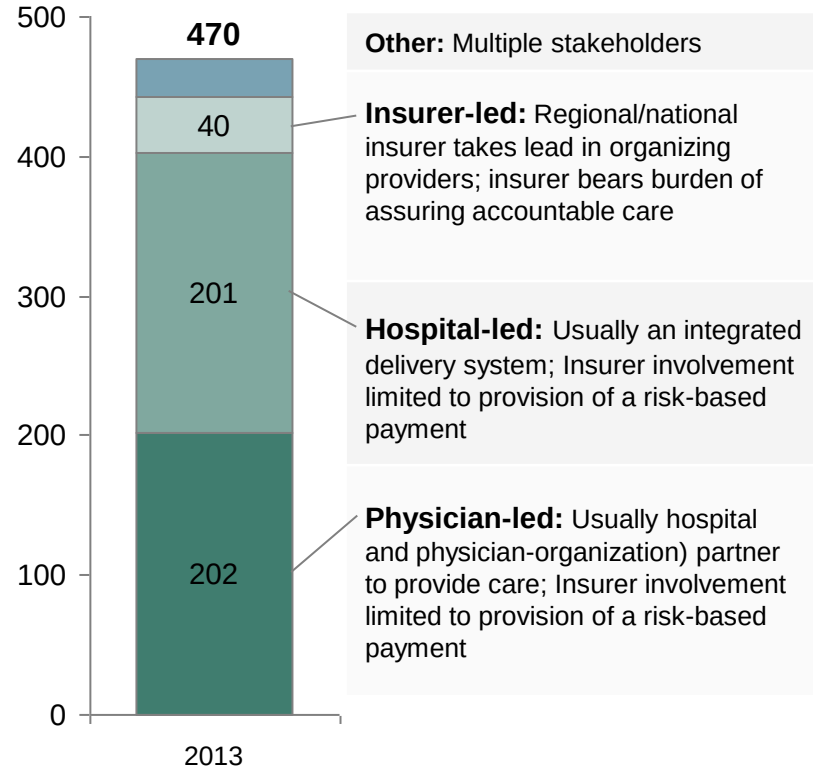
Accountable Care Organizations (ACOs) help to control hospital costs

ACO model incentivizes hospitals to keep patients healthy

Goal	Reduce health care system costs while simultaneously increasing quality
Description	• Comprised of multiple levels of providers organized as legal entities • Responsible for coordinating, delivering the full continuum of patient care • Incentivized for managing both the cost and quality of care
Structure	Any combination of: • Hospitals • Physicians • Other qualified providers • Payers

470 ACOs currently in the U.S.

ACOs, by organization type



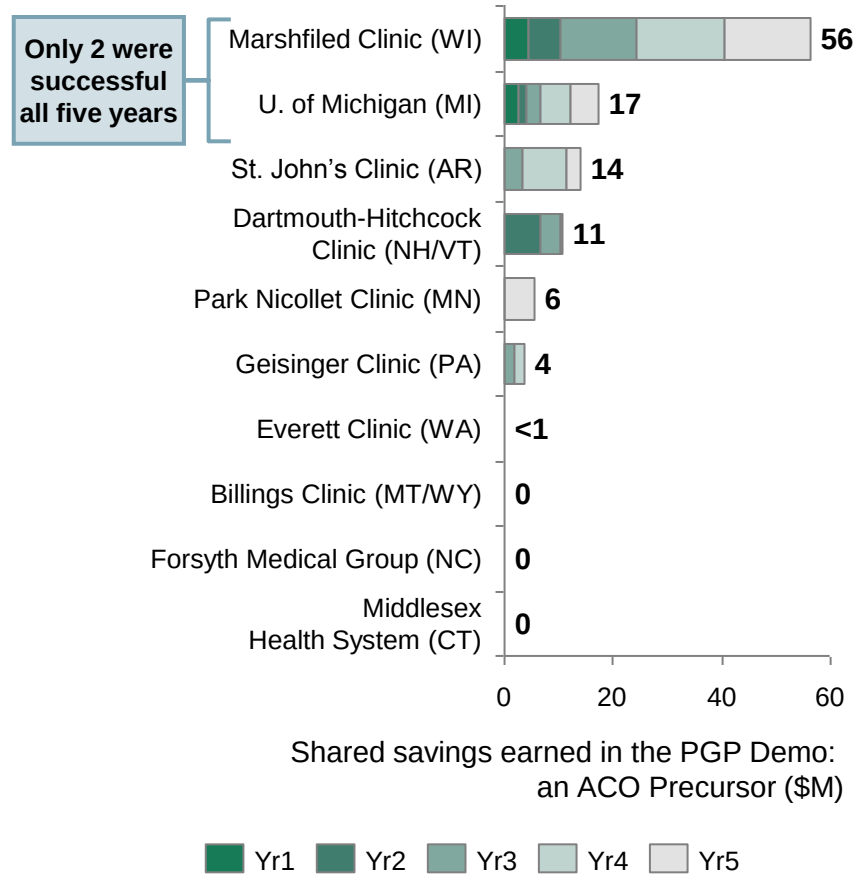
Source: Leavitt Partners

However, unclear whether ACOs without payer involvement will be successful

Not all hospitals have the necessary capabilities for population health management[1] ...

- ☑ **Well-defined leadership, governance structure**
- ☑ **Financial alignment behind goals of care coordination and cost reduction**
- ☑ **Clinical integration to align care across providers**
- ☑ **Processes and programs for population management (e.g. prevention, disease management, case management)**
- ☑ **Robust metrics, data for performance measurement**
- ☑ **Information technology capable of integrating, aggregating data and systems across participating organizations**
- ☑ **Physician engagement, performance evaluation**

... as a consequence, pilot ACO results were highly varied[2]



1. Blue Shield of California "An Accountable Care Organization Pilot: Lesson's Learned"
2. RTI International, "Physician Group Practice Demonstration: performance Year 1 – Preliminary Performance Year 5 Summary Results"

Effective governance structure and oversight is needed for disciplined roll-out of initiatives

Advisory Board mandates benchmarking in hospital chains

HELIOS

Hospital Group

Routine benchmarking to reduce inadvertent errors, freeing up resources from re-admissions

1. **Performance benchmarking against hospitals**
   Laggards triggered peer review
2. **Issues identified**
   Inter-disciplinary teamwork
   ER management
3. **Improvements implemented** and continuously monitored

Within 4 years, AMI[1] in-hospital mortality rate dropped by 15% in 2006

Multidisciplinary Action Plan Rounds to improve patient flow

Lucile Packard Children's Hospital Stanford

- Early discharge incentive program that was started among nurses and residents
- **Early morning discharges** on some medical teams have increased by **75-100%**
- Rounds by multi-disciplinary team successfully **decreased average length of stay by 10-20%**

1. Acute Myocardial Infarction

Source: Interviews with medical professionals and experts, press search

Support ongoing transparency & efficiency initiatives through mobile & e-governance ...

	MyHEALTH for life	myPROCUREMENT PUSAT MAKLUMAT PEROLEHAN KERAJAAN KEMENTERIAN KEWANGAN MALAYSIA	mySIKAP
Objective	**Mobile platform providing quick, easy real-time information on healthcare**	**Transparency in gov't procurement process – including information on tenders & contracts**	**Bringing more transactions involving vehicles online** • Increase online transactions to 85% from 40%
Services provided	**Healthcare services information** • Location of providers • Registered medication • High-risk locations (e.g. dengue) **Health & fitness lifestyle assistance** • Health risk analysis / symptoms • FAQs	**Tender information for selected ministries** • Tender advertisements – Publication of tenders, by ministry & date • Tender awards decisions – Value & winners of contracts **Procurement policy** • Procurement policy	**Transactions from older SIKAP system, including all involving:** • Vehicle, including road tax • Licenses, registration, test results • Violations, including fines, KEJARA points
Owner	Kami Sedia Membantu MAMPU	MOF	JPJ MAMPU

Source: Respective websites, press search

Example initiatives to improve Healthcare productivity (IV/VII)

ICT Infrastructure

Preliminary

Best practices

Central repository of information fosters competition - better management of turnaround times

Electronic requesting systems prevents duplicate requests and allows better management of turnaround times

- Clinicians can request imaging procedures and receive updates on their progress digitally, replacing need for paper-based systems.

Web-based publication of benchmarking data collected from private healthcare providers fosters competition and efficiency

- Healthcare Evaluation Data enables NHS community to compare efficiency levels

Remote diagnostic/telemedicine and wearables increases patient outreach, reduces waiting time & human error by eliminating chain-of-custody issues

- Services could be outsourced to lower labour cost countries, e.g., India
- Reduces human error by eliminating chain-of-custody issues
- COPD[1] patients can be discharged and rehabilitated at home
  - Reduces ward cover for nurses
  - 50-60% reduction in hospital nights and re-hospitalizations

Levers Triggered

Critical Important Necessary

1. Chronic Obstructive Pulmonary Disease

Source: AFNF; Ericsson; WHO; UN Foundation; Medisat; MCG analysis

Example initiatives to improve Healthcare productivity (V/VII)

ICT Infrastructure

Preliminary

Best practices

Other innovative infrastructure helps to free up resources

SMS-based medication reminders can improve compliance by 30-70%, reducing complications and need for re-admission

- SIMpill Solution for TB in South Africa and Phoned Pill Reminders in Thailand resulted in 90% compliance of tuberculosis regime
- Typically 22-60% compliance without system

Tablets and smartphones as digital assistants for doctors – e.g. EMR & patient monitoring

Levers Triggered

Critical Important Necessary

1. Chronic Obstructive Pulmonary Disease

Source: AFNF; Ericsson; WHO; UN Foundation; Medisat; MCG analysis

Web-based publication and publication of outcomes data

Denmark has a centralised e-Health Portal '*Sundhed.dk*' ...

- Centralised database of information, which is accessible across nation
  - 1.2m unique users /month

- **Fosters transparency and increased efficiency in the roll-out of quality care**
- **Easily accessible to citizens:** Access to information on classifications, treatments, waiting lists
- Time savings Online appointments by patients; access of patient records by healthcare professionals

... which fosters transparency and increased efficiency in the roll-out of quality care

Illustration: Bruno (patient) with pain in right hip

Process of electronic communication over a sample patient's course of treatment

1. Makes appointment with GP through Sundhed.dk
2. Doctor takes blood tests which are sent to lab & orders an X-ray exam
3. Doctor receives report & orders for referral to Hip Arthroplasty department
4. Patient referred – Doctor has access to X-ray & lab-reports that GP ordered.

   Hospital sends a request for Bruno to be admitted for treatment & send notification to municipality to inform them of this
5. Municipal homecare receives notification in advance of his discharge.

   Homecare nurse orders prescription renewal from GP
6. The municipality receives the rehabilitation programme and starts the rehabilitation process.

Central repository of information fosters competition & allows better management of turnaround times

Telemedicine reduces costs & waiting time

COPD[1] patients can be discharged and rehabilitated at home

- ~4% of Nordics have COPD
- Reduces ward cover for nurses
- 50-60% reduction in hospital nights and re-hospitalizations

Full-scale roll-out can achieve valuable time savings and expand customer reach

Electronic request systems result in better turnaround times

Web-based system, easy-to-use interface – eliminates resistance to new practices

Enable clinical requests from wards, clinics and GP surgeries

- E.g. radiology imaging

Full tracking and updates from computer terminal, replacing paper-based systems

1. Chronic Obstructive Pulmonary Disease

Hospitals are experimenting with virtual care through telemedicine

Services provided by telemedicine incorporate both provider and patient …

Telemedicine is the delivery of remote clinical services using technology

Service offerings include:

- Primary care / specialist consultations with a patient
- Remote patient monitoring
- Consumer medical and health information
- Continuing medical education

… with multiple delivery mechanisms …

Networked programs
Link tertiary care hospitals and clinics to rural/suburban areas

Point-to-point connections
Outsource specialty services to independent medical service providers

Monitoring center links
Centers for monitoring patients in the home (e.g. cardiac, pulmonary, home care)

e-health patient service sites
Web-based direct consumer outreach, including direct patient care

… and is increasingly being utilized

Estimated networked programs by ATA …

… With expectations for a significant impacts in the next 10 years

89% % of surveyed executives expecting telemedicine to transform U.S. healthcare in the next decade[1]

1. Intel Digital Health: Telehealth in the U.S. Health Care System – Preliminary Topline Survey Findings (2010)
Source: American Telemedicine Association

Other innovative infrastructure helps to free up resources

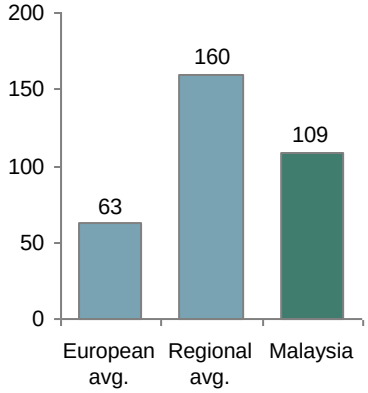
SMS reminders reduces re-admissions

Can improve compliance 30-70%

- SIMpill Solution for TB in South Africa and Phoned Pill Reminders in Thailand resulted in 90% compliance of tuberculosis regime
- Typically 22-60% compliance without system

Medium prevalence of TB

Prevalence per 100k population



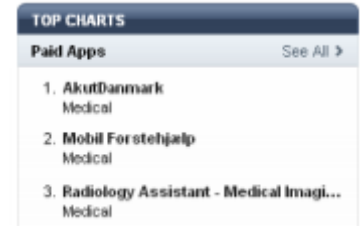
Provision of tablets & smartphones to doctors as productivity

Doctors are rapidly adopting tablets and smartphones as digital assistants, e.g.:

- Referencing & information
- Education & professional journals
- EMR & patient monitoring apps
- Imaging apps
- Point of care apps to be used at bedside
- Personal care apps for patients

Apple launched dedicated professional app store

- Several companies now developing apps exclusively for healthcare professionals

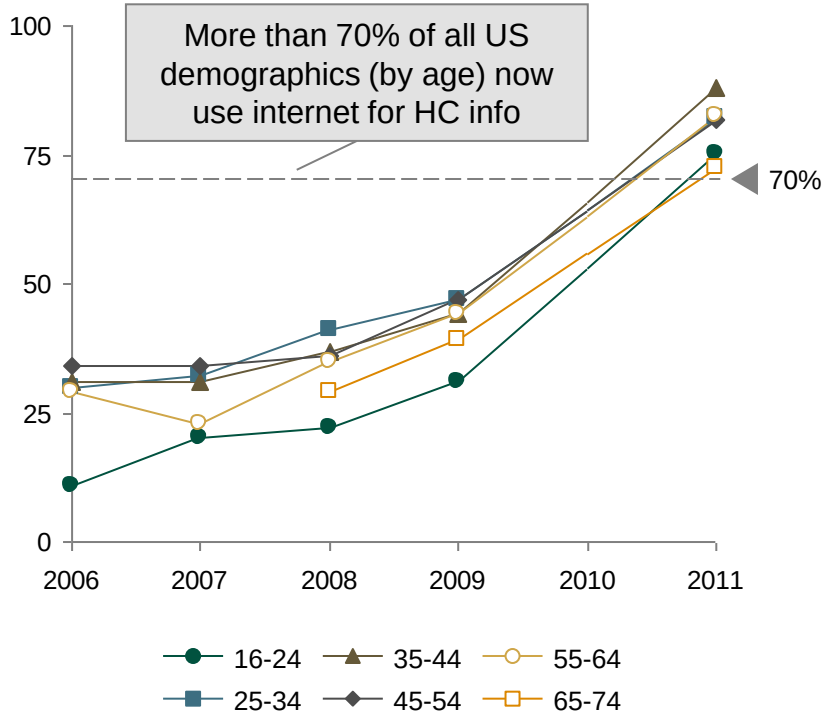


Note: Country situation based on latest WHO country data from 2009
1. 5-10% of people without HIV and 30% of those co-infected with HIV develop active disease
Source: WHO; UN Foundation; SIMpill; Businessweek; iTunes Store; Manhattan Research; MobiHealthNews; Apple; MCG analysis

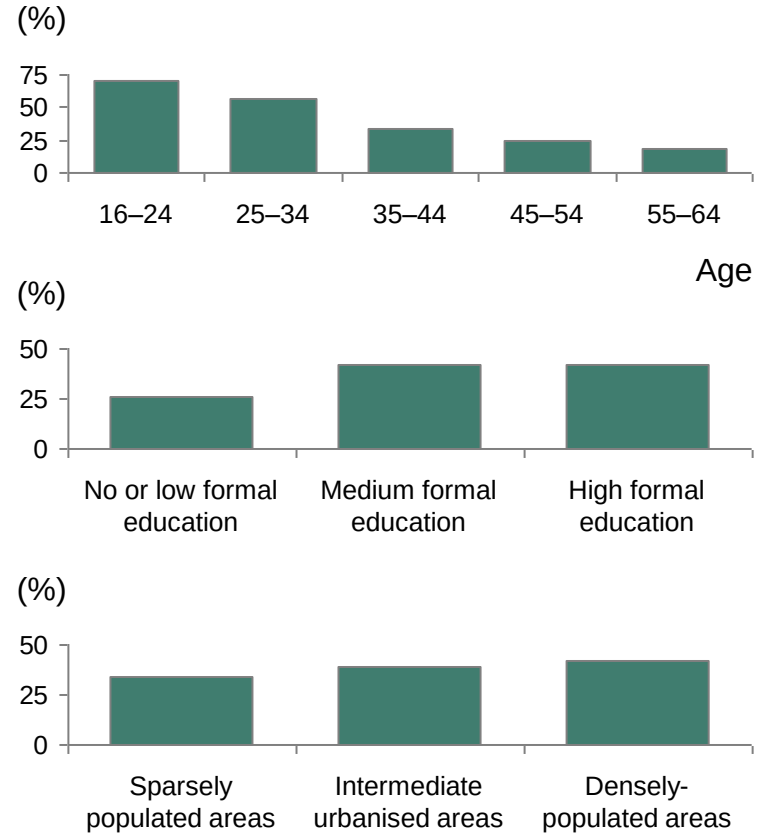
Patients are increasingly online and are comfortable with digital and social media

Increasing use of Internet for health information[1]

US HC consumers using internet to seek information on injury, disease or nutrition (%)

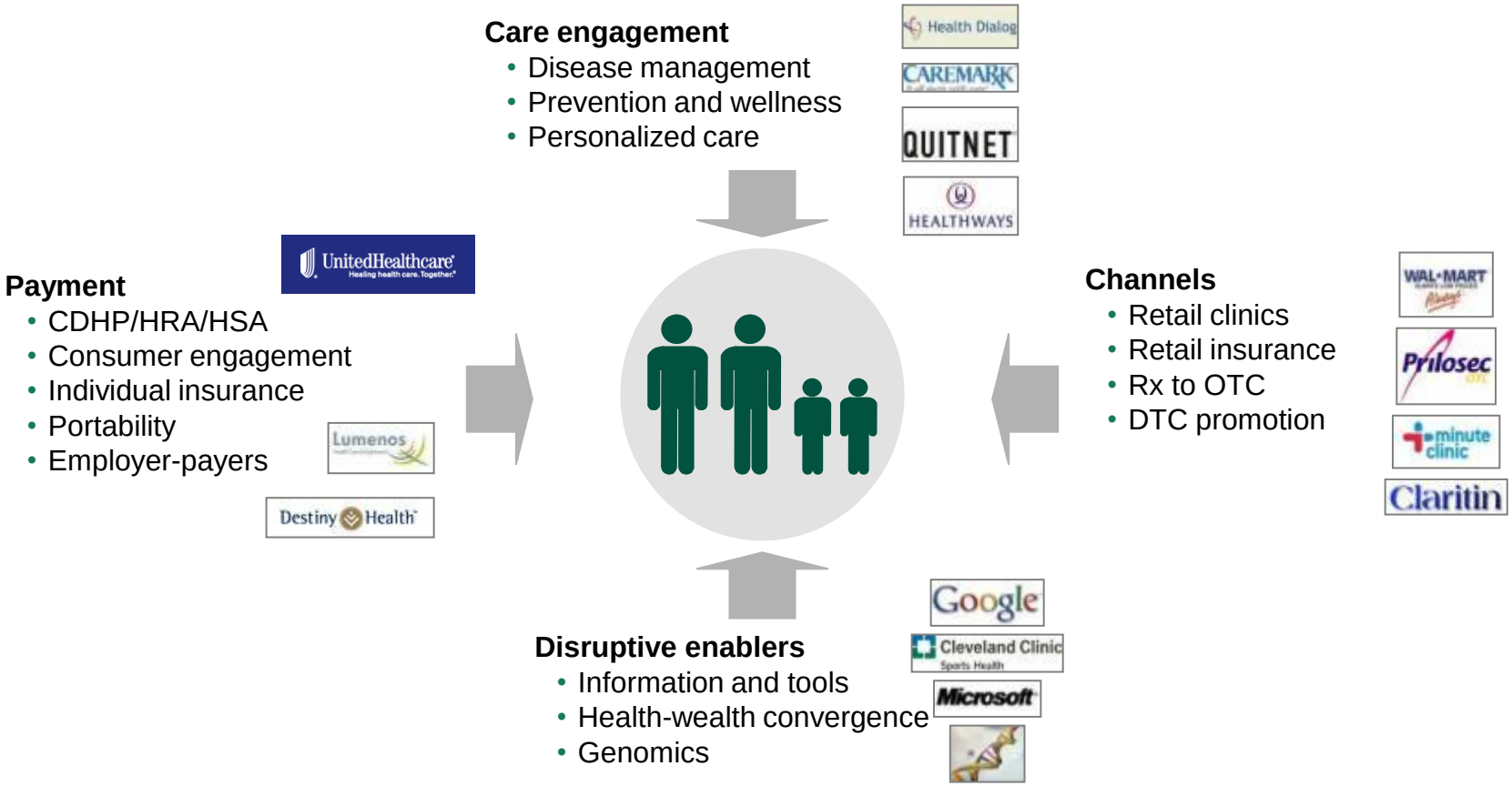


Blogs and social networks used for health advice & support[2]



1. HBS, January 21, 2011: PatientsLikeMe 2. Patient quote, industry research
Source: Eurostat, MCG analysis

Several healthcare players are helping to drive this trend by getting patients to take charge



Technology is enabling patients to increasingly take charge of their health care

Source: MCG analysis

Patient empowerment has profound impact on treatment setting and MedTech distribution

How health care is delivered

Key considerations for patients

- **Cost**
- **Convenience**
- **Self informed**
- **Quality**

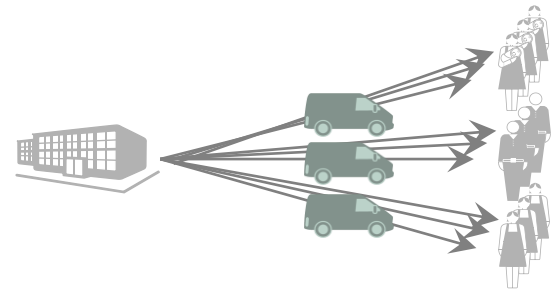
Disruption of patient empowerment to status quo

a Impact on treatment setting

- HC delivery moving out of traditional settings (e.g., hospitals, doctor offices) to move convenient locales for the patient (e.g., retail centers, places of employment and the home)
- Reduced length of hospital stay

a Impact on distribution

- Shift towards direct to patient distribution, bypassing traditional, more expensive channels such as pharmacies



Source: MCG analysis

MedTech companies such as ConvaTec are adapting to shift towards home care

Case study

ConvaTec is marketing its products to patients directly …

Shift towards home care has necessitated MedTech companies to interact directly with patients/ caregivers

MedTech companies are increasingly working with digital channels to "communicate with" patients/caregivers directly

Digital channels e.g., internet forums have proven to be a powerful channel for directly accessing consumers, patients and/or caregivers

- … especially in settings where the product is associated with shame (e.g., ostomy, incontinence), as they provide an important platform for patients to share experiences without revealing their identity

ConvaTec is an example of a MedTech company that has begun to target the home care segment through online as well as traditional channels

Source: ConvaTec

… through a digital and traditional channels

Direct to patient	• Online support services and information • ConvaTec Customer Interaction Center—has WOC on staff to follow up with patients by phone • Direct, discreet delivery of products to home
Health professionals and care givers	• ConvaTec Starter Kit web order tool to enable healthcare professionals to help prepare their patients for the transition home • Online education portal (clinical evidence, informational guides, patient care guides) • ConvaTec academy to train health professionals/caregivers

Example initiatives to improve Healthcare productivity (VI/VII)

Design, process & logistics

Preliminary

Best practices

"Barn operating theatres" reduces time between patients and increases savings on overall floor space

- Open-plan main surgical area, with each patient being treated in a dedicated space alongside the next.
- Adjacent anaesthetic rooms & recovery areas reduces transfer time

Revise referral process to capture time savings

- e.g., referral time to surgery reduced by over 50%
- Higher day case rate and lower hospital costs for hernia treatment

Traffic segregation reduces heavy traffic, maintenance costs

- Facilities management traffic segregated from patient flows
- Heavy linen cages, food & supplies trolleys transported by robots1 in dedicated service lifts , saving GBP50K p.a. on repair costs

Replacing key to drugs cupboard with alphanumeric lock in casualty dept. – reduced time wasted looking for keys by 12 nurse-hours a week.

Levers Triggered

Critical Important Necessary

Source: Interview with experts, press search

Optimising design & operational processes to improve process flow

'Barn' operating theatres

Reduces time between patients & increases savings on overall floor space

Open-plan main surgical area, with each patient treated in dedicated space alongside the next.

Low transfer time - adjacent anaesthetic rooms, recovery areas

No cross-contamination: Air flow from the canopies effectively acts as a divider

Revise referral process to capture time savings

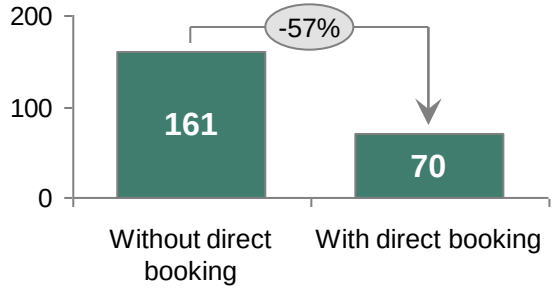
Case Study #1: Pilot initiative in Scotland & 6 trusts in England

- Patient self-referrals assessed by physiotherapist who identifies whether urgent, routine, etc.

Case Study #2: Direct booking for hernia procedures, Whittington Hosp.

- GP referrals triaged directly to the day surgery unit (DSU)
- DSU nurses pre-assess patients & book/ transfer patients to the in-patient lists of one surgeon.

Time from referral to surgery (Days)



Optimisation of traffic by segregation

- Traffic segregation reduces heavy traffic, maintenance costs
- Facilities management traffic segregated from patient flows
- Heavy linen cages, food & supplies trolleys transported by robots[1] in dedicated service lifts , saving GBP50K p.a. on repair costs

1. Automated Guided Vehicle System (AGVS)

Sources: Strengthening Local Services: The Future of the Acute Hospital Reference and Resource Report 2006

Example initiatives to improve Healthcare productivity (VII/VII)

Medical Tourism

Preliminary

Best practices

Measures to target high-value medical tourists

Comprehensive e-portal as one-stop-shop
- Dubai Health Experience: first comprehensive e-medical tourism portal
  - Medical insurance[1] to cover any complication or medical liability
  - Return to AEC and revision of surgery ROC

Strong participation in intnl medical tourism events to gain exposure
- Turkey frequently attends and sponsor s events
- Dubai has shown growing interest in hosting

Relaxation of rules on advertising
- Singapore & Thailand permits published patient testimonials which are easily accessible online - Relax strict advertising regulations

Gain exposure – strong participation in international medical tourism

Levers Triggered

Critical Important Necessary

1. Chronic Obstructive Pulmonary Disease

Source: AFNF; Ericsson; WHO; UN Foundation; Medisat; MCG analysis

Measures to target high-value medical tourists

Strong participation in intl events

Strong participation in intnl medical tourism events to gain exposure

- Turkey frequently attends and sponsor s events
- Dubai has shown growing interest in hosting

Relax advertising regulations

Singapore & Thailand permits **published patient testimonials** which are easily accessible online

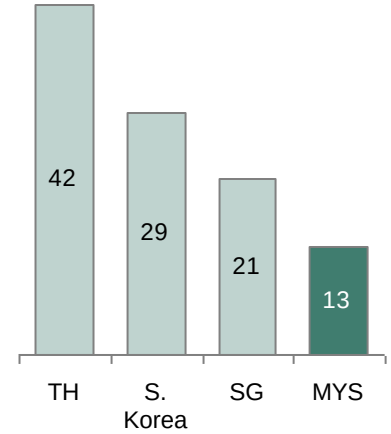
Comprehensive med tourism e-portal

Dubai Health Experience: First comprehensive e-medical tourism portal

- Caters to premium customers
- Medical insurance[1] to cover any complication or medical liability
- Return to AEC and revision of surgery FOC

Accreditation & Govt. Support

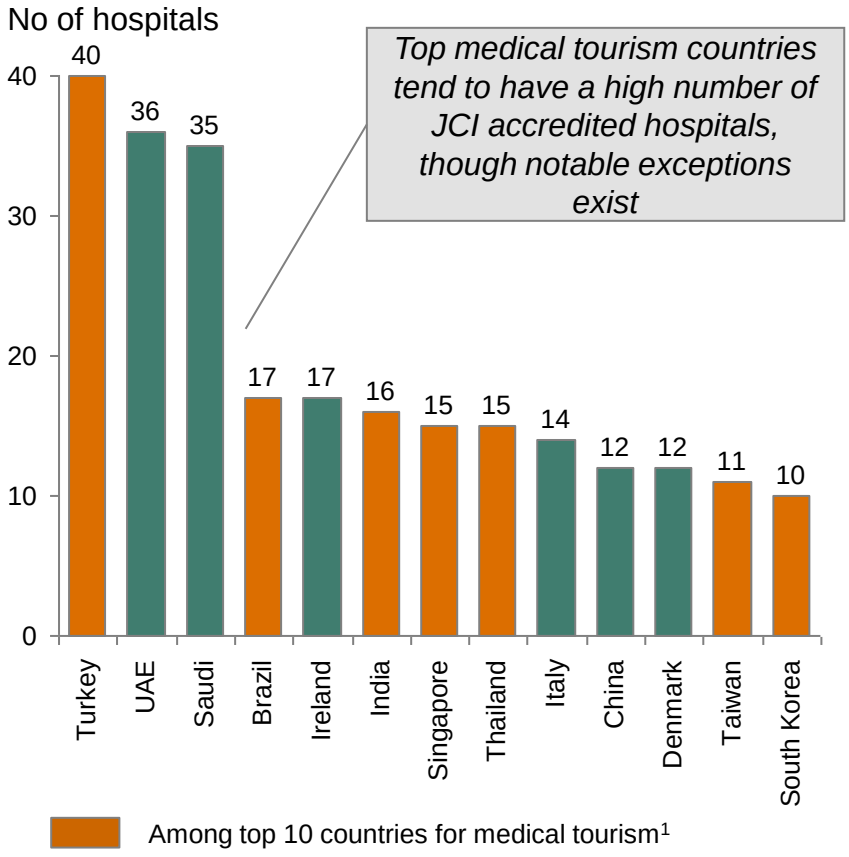
High number of JCI[3] accredited healthcare providers



) . Patient Bill of Rights and Patient Protection Plan
Source: AFNF; Ericsson; WHO; UN Foundation; Medisat; MCG analysis

JCI accreditation does not provide a full picture of quality, but is often used as decision factor by patients

Countries with highest number of JCI accreditations



Patients from the US/Europe trust in JCI accredited institutions

" I choose a JCI-accredited hospital. Qualifications were an important factor and then facilities, and how they handle things "

- Patient at Christus Muguerza Hospital Alta Especialidad, Monterrey, Mexico

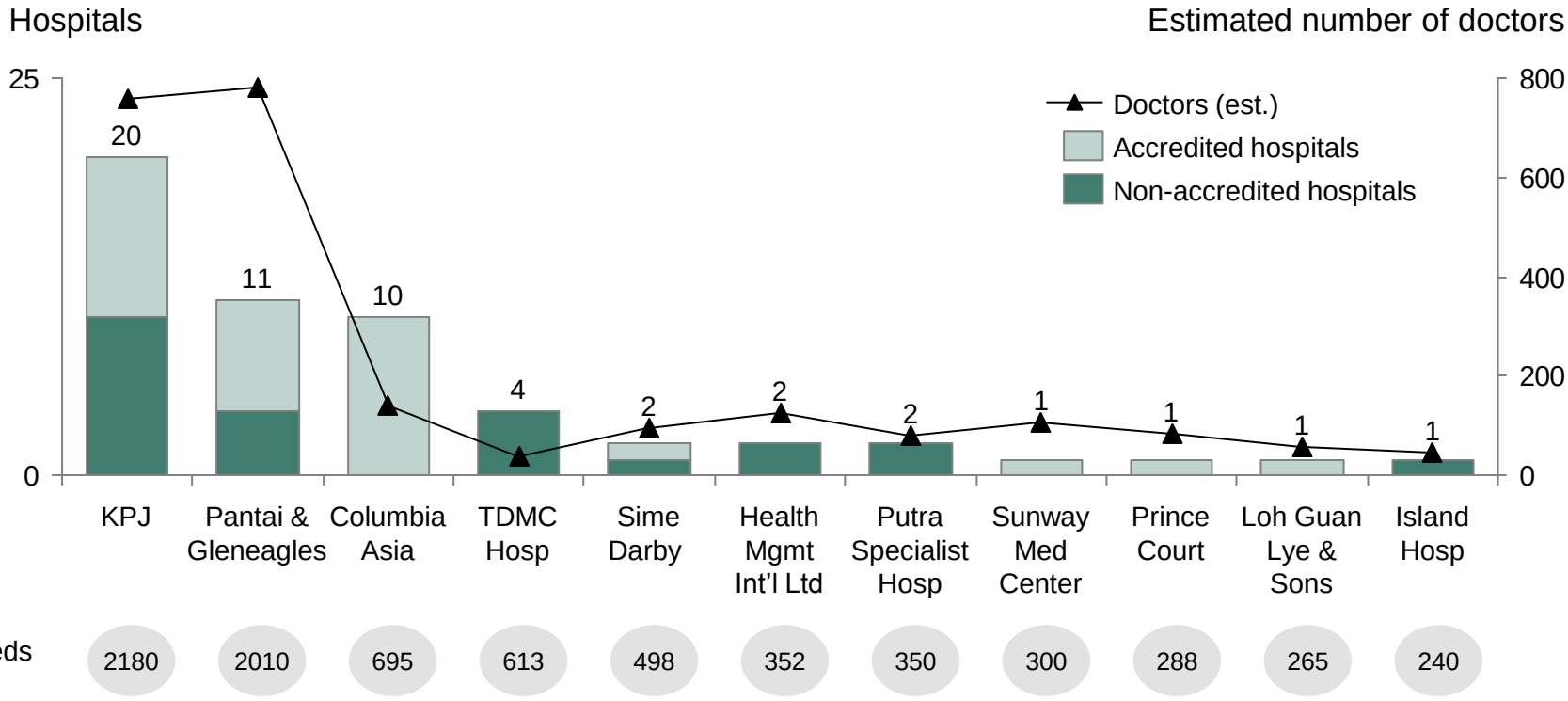
" In my choosing this hospital, cost was a secondary factor. I selected Bumrungrad as it kept popping up on search engines as number one and, at that time the only JCI-accredited hospital in Thailand. "

- Patient at Bumrungrad, Thailand

1.According to Patients Beyond Borders

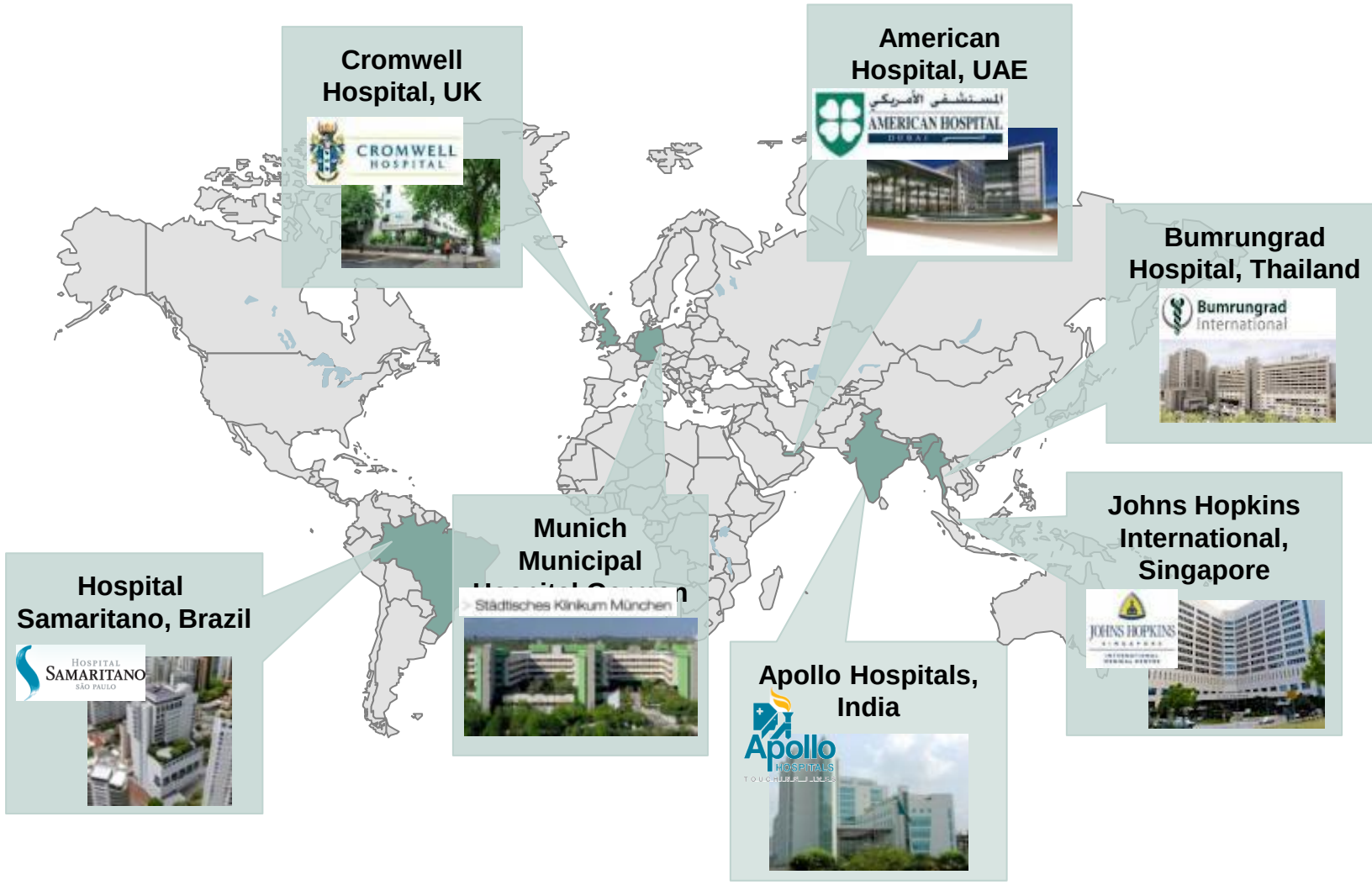
Malaysia has ~30 accredited hospitals – push for further accreditations can help bring in more high-value tourists

Key private healthcare hospitals, 2013



1. % of private expenditure on health
Source: ASEAN Healthcare, Morgan stanley, 2014

Examples of leading hospitals attracting medical tourists



Seven success factors to attract international volumes

Quality care

Key decision factor in choosing a hospital abroad

1. **National or regional center of excellence**
   - Reputation for quality care in specific area
2. **High-caliber physicians**
   - Significant pull-effect due to 'star physicians'
3. **International accreditation**
   - JCI accreditation as quality seal

Partnerships

Vital in attracting international volumes

4. **Affiliation with reputed international hospitals**
   - Collaboration and referrals
5. **Partnerships with Medical Tourism Facilitators**
   - Reduced transaction cost for patient
   - Efficient marketing tool in target countries

Patient experience

Essential to compensate for inconvenience of traveling

6. **Non-medical services**
   - Support with travel, linguistic support etc minimizes barriers to travel
7. **Hoteling facilities & infrastructure**
   - Luxury patient rooms, facilities for accompanying family, recreational options

Decision for medical travel influenced by multitude of factors

	Establish needs & options	Explore options and select
Decision process	Diagnosis discussions with physicians	Medical Tourism Facilitator (MTFs) • MTF selects hospital and physician • MTF manages entire process (travel, interaction with hospital, documentation, etc)
	Assessment of treatment options at home	Directly with hospitals • Patients researches options independently and selects hospital and physicians • Arranges treatment directly with destination
	Cost-benefit analysis of treatment abroad	Through both hospitals and MTFs • Patient identifies hospital and physician • MTF partnered with the target hospital manages the process
Decision Factors	• Cost of treatment • Waiting time • Savings abroad • Insurance coverage • Family and friends	• Quality of institution and physicians • Facilities and non-medical services • Patient experience (airport pick-up, translation, medical coordination) • Tourism options • Cost and quality of MTF

Current drivers for rising medical tourism

Aging

- Aging global population increases demand for health care
  - Life expectancy expected to increase by 0.1 years annually in developed countries (e.g. for the US, LE will grow from 78 in 2010 to 83 in 2060)

Cost of care

- Rising cost of health care in developed countries encourage travel abroad for treatment
  - Asian countries provide medical care up to 90% cheaper than the US

Government spending

- Debt crises place increasing pressure on Western governments to cut healthcare expenditures
  - Gap between public and private healthcare providers likely to further widen

Cost of travel

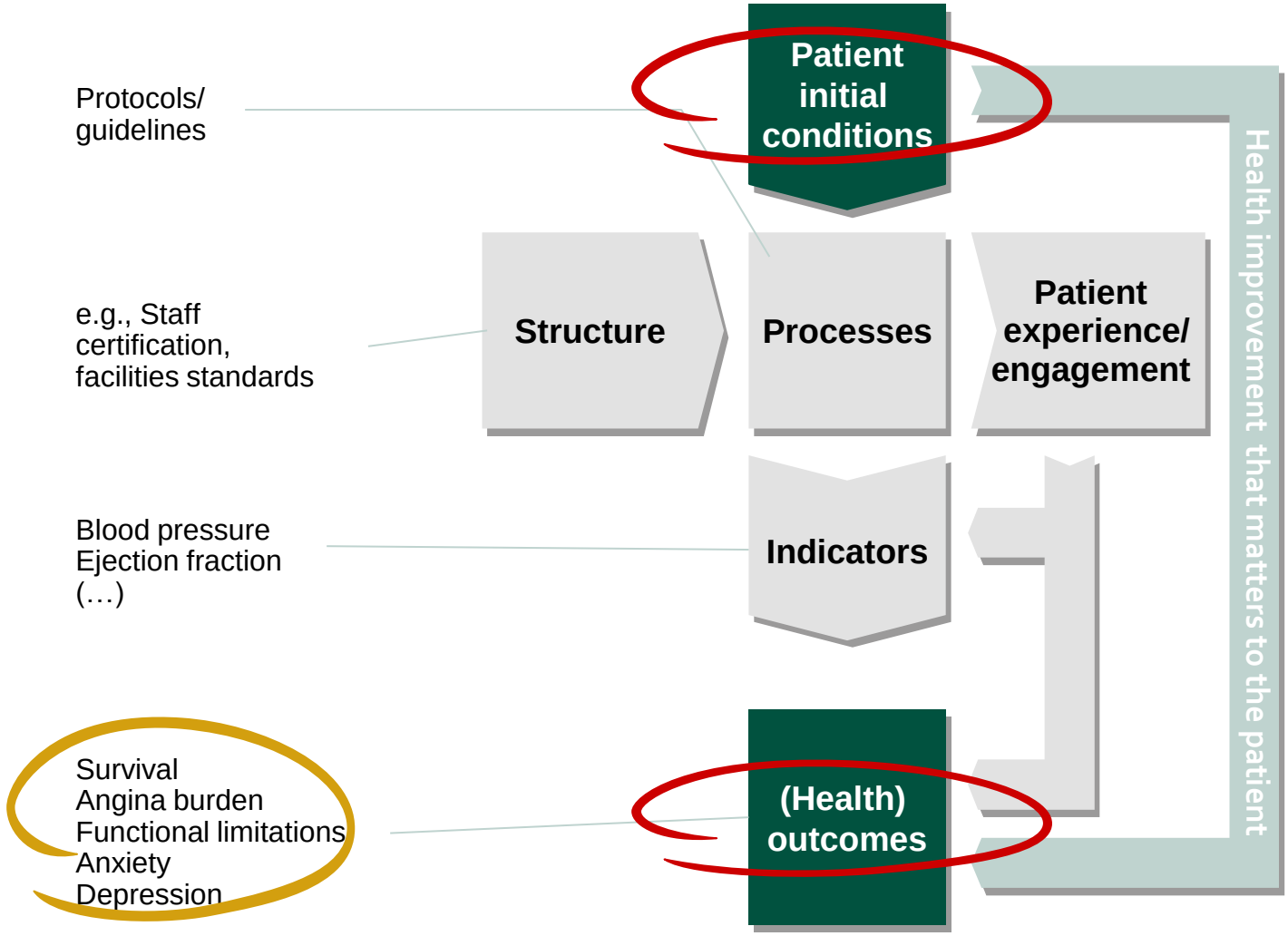
- Cost of travel decreasing and willingness to travel for treatment is increasing
  - Travel and hotel costs are far lower than absolute savings for medical tourists

Transaction cost

- Visa requirements and language barriers are being reduced
  - Third party agents and hospitals increasingly providing travel, visa and linguistic support

Outcomes are the 'real world' experience of patients

Examples from coronary artery disease (CAD)



Multiple data sources can be used to measure outcomes

Australian INRO model

Integrated Needs-Responses-Outcomes

Patient Needs	Responses: Inputs and costs	Responses: Services	Responses: Outputs	Patient Outcomes[1]
Demographics • Population • Age profile • At risk groups • Remoteness Existing morbidity Behavioural risks etc	Health workforce Health infrastructure Payments for services • GPs • Allied Health • Specialists • Diagnosis Activity based costs Block payments etc	Primary care Specialist care Acute care Emergency services Inpatient services Community health Allied health services Diagnostic tests Prescriptions etc	Length of stay Cost of care Complications Readmissions Bed day utilisation etc	Tier 1: Health status • Survival • Degree of recovery (including disability) Tier 2: Recovery process • Time to recovery • Treatment problems Tier 3: Health sustainability • Recurrences • Long term adverse treatment effects

Equity | **Allocative efficiency** | **Productive efficiency** | **Effectiveness of interventions**

Note: greyed out text indicates data that we may want to add to the model in future iterations
1. ICHOM outcomes hierarchy
Source: BCG, ICHOM

7 commonly-used operational productivity metrics identified

Preliminary

	Operational metrics	Description	Calculation
National	Cost per Life year gained for private sector	For people paying for care privately, their "additional" healthy life expectancy divided by private health expenditure per capita	Private health expenditure / LYs gained of privately covered population
Industry	Healthcare resources availability	Measures availability of healthcare workforce / other resources (e.g. MRI units, acute care bed) in a particular area, region or country	Total medical graduates / Population
Industry	Healthcare activities utilisation rate	Measures utilisation rate of healthcare activities in a particular area, region or country	Number of GP consultations x 100 / Population
Individual	Provider mix ratio	Analyses workforce structure to determine optimal level Number of physicians, nurses practitioners etc	Total mid-level FTEs / Total physicial FTEs
Individual	Resource utilisation rate	Determines utilisation level of resources at various levels, e.g.: • Facility-level: Av. minutes per surgery • Dept-level: Number of laboratory tests per in-patient stay • Procedure-level: Av. length of in-patient stay by procedure	Number of [resource] / Day / Hour / Minutes
Individual	Cost/utility by type of resources	Largely used by healthcare providers to reduce supply/labor costs and increase productivity • E.g. measures utility for congestive heart failure charges relative to appropriate procedure	Av. treatment charge & cost by condition type
Individual	Patient outcomes	Patient survival and functional outcomes following common types of treatment, benchmarked against other s	Observed outcomes / Risk-adjusted expected outcomes
Individual	Commercial	Measures amount of revenue generated from a particular resource	Revenue / Physician FTE

Source: OECD, World Bank

Agenda

Time	Session		PIC
0830 - 0900	Arrival and registration		
0900 - 0930	**Project context** - Why have we embarked on this project? - What does this project entail?	P	EPU/ BCG
0930 - 1030	**What productivity means for this subsector** - Why is it important? - Gap vs RMK 11 target and benchmarks - Our approach and initial views (challenges and existing plans)	P	BCG
1030 - 1045	Tea break		
1045 - 1145	**Breakout session #1: Verify critical challenges and drill down to root causes**	G	Participants
1145 - 1215	Recap to the room		Participants
1215 - 1315	Lunch break		
1315 - 1345	Best practices from around the world	P	BCG expert
1345 - 1445	**Breakout session #2: Brainstorm and prioritize productivity improvement initiatives going forward**	G	Participants
1445 - 1500	Tea break		
1500 - 1530	Recap to the room		Participants
1530 - 1600	Closing remarks and next steps		BCG

P *Presentation* G *Group discussion*

Roundtable discussion: Productivity improvement initiatives

Part 1: Brainstorming solutions

For the challenges identified earlier, what can we do differently to improve productivity

- Increase output, or to reduce input?

How can we ensure we are addressing the root cause?

No bad ideas, let's brainstorm!

15 minutes

Part 2: Detailing it out

How would this initiative work in practice – what needs to change from how we work today

- As an industry
- As a company
- As individuals

What is the definition of 'success' for this initiative? What metric should we use?

35 minutes

Output: Productivity improvement initiatives

Lever	High-priority challenges	Proposed initiatives	Measurable output
Text	Text		Text

Populate from Breakout session #1 over lunch break

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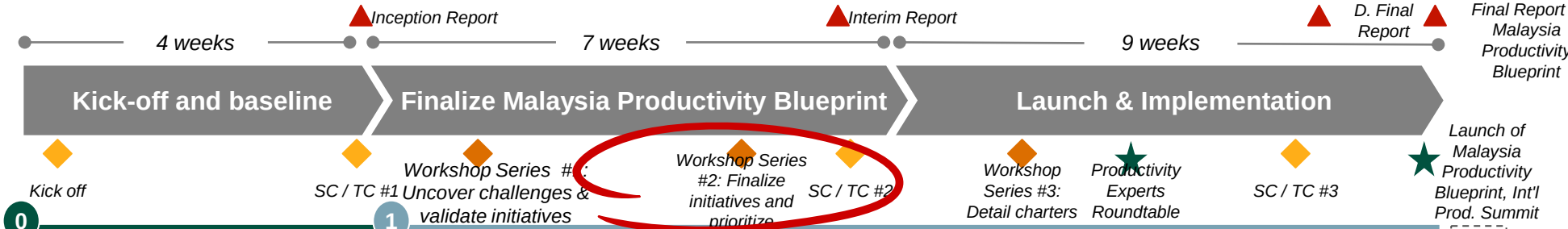
P ***Presentation*** G ***Group discussion***

We aim to schedule Workshop Series #2 (16-27 May) to finalise and further detail initiatives



0 Preparation

- Conduct ***comprehensive review*** (incl. biz regulations) of productivity policies, strategies and initiatives by sector to broadly ***assess effectiveness***
- Identify ***high-level barriers*** that impede productivity through interviews (via industry associations, selected industry representatives)
- Conduct ***intl. benchmarking*** of productivity strategies and impact
- Prepare for Workshops
- Draft Inception report

1 Finalize and prepare launch of Malaysia Productivity Blueprint

- Detail ***key challenges*** that impede productivity by sector
  - Run *Workshop Series # 1* (10-12 lab sessions), 2 days each, with key representatives from each sector to ***uncover key productivity challenges***
  - Representatives to include associations, selected enterprises and key govt. agencies
  - ***Prioritize key challenges*** faced by sectors
- Develop ***productivity improvement strategies***, based on industry challenges and benchmark results, including expected impact, at national, industry & enterprise levels
- ***Validate productivity program and targeted initiatives***
  - Run *workshop Series # 2* (10-12 lab sessions), 2 days each, with key representatives from each sector to ***finalize productivity initiatives***
  - ***Prioritize set of high-priority sectors*** to start implementation
- Draft ***comprehensive action plans*** for finalized productivity program & initiatives (roles, implementation milestones, timelines, cost of initiatives, etc.)
- Draft ***Malaysia Productivity Blueprint***, encompassing improvement strategies at national, industry and enterprise levels
- ***Refine and finalize*** Malaysia Productivity Blueprint[1]
- ***Support launch*** of Malaysia Productivity Blueprint

2 Prepare for implementation

- Facilitate *Workshop Series # 3 (*5-6 lab sessions), 2 days each, to ***detail and validate action plans***
- ***Deep-dive into 3-4 high-priority sectors*** to commence implementation with Working Groups identified
- Train and deploy Productivity SWAT team to ***assess, enhance and support implementation*** going forward
- Develop ***operating framework for National Productivity Council*** (including TOR, membership and first meeting scheduling and agenda)
- Support ***launch of PMO***[2] (incl. tools, templates)

3 Support Culture of Productivity Campaign

- Define ***objectives for campaign***, identify ***key audience segments*** and support PR firm (tbc) with ***content and key messages by segment*** for brand and campaign launch

4 Enablement and training to build longer-term capabilities

- ***Hand-in-hand joint team approach*** (with BCG and full time team members from key stakeholders such as EPU and related agencies) with BCG team ***actively providing capability transfer for continuity***

Ongoing implementation of Medium and Low Priority Initiatives

1. BCG to continue support to EPU beyond 20 week project period to finalize Malaysia Productivity Blueprint 2. Program Management Office

Next steps

We will capture today's discussion in the draft of the Malaysian Productivity Blueprint

We will send a link for the questionnaire – we hope you'll share it with other industry players

We will be in touch via email for the specific date and location for Workshop #2

- If you haven't shared your email at registration earlier today, please stop by the desk outside on your way out
- Between 16-27 May

If you have further inputs please email us at anwar.nadia@bcg.com

MCG

The local entity of THE BOSTON CONSULTING GROUP

Thank you

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