

PENYEBARAN MAKLUMAT TERPILIH
(Siri 2/2002)
K-ECONOMY



KANDUNGAN

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Title : MALAYSIA AND THE K-ECONOMY : CHALLENGES, SOLUTIONS AND THE ROAD AHEAD
Author(s) : David N.Abdulai (Editor)
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The book is about the knowledge-based economy, an economy where knowledge intensity and its application to production and to the productive sectors of any country's economy can bring about quantum leaps in growth. The unwritten assertion of this book is that Malaysia can grow and develop, even realize its goal of attaining a developed country status by the year 2020. This can be done when Malaysia moves towards being a knowledge-based economy.

This book written by academics of Multimedia University covers important areas ranging from higher education to the digital divide, electronic banking as well as human resource issues. All such issues are of immense importance to Malaysia as it moves towards a knowledge-based economy.

The collection of chapters in this book all look at Malaysia's efforts in transit to a knowledge-based economy albeit from different angles. The 8 chapters are :

Chapter 1

The Challenge for Higher Education in Malaysia in an Era of a Knowledge-Based Economy by Dr. Mohd Ridzuan Nordin

- Observes that if Malaysia is to move towards a knowledge-based economy, having the requisite human resources is must. Improving higher education in Malaysia is one way of developing the requisite human resources to power Malaysia's efforts of moving towards a knowledge-based economy.

Chapter 2

Technology Development Challenges in Malaysia : Minimising the Digital Divide by Dr. Shahrin Sahibbudin

- Deals with the important issues of the digital divide as Malaysia moves towards a knowledge-based economy. He looks at the consequence and offers some solutions to the problem.

Chapter 3

The Process of Continuous Learning and Training : The New Rule For Malaysian Workers in the Knowledge-based Economy by Dr. David Abdulai

- Looking at one of the new rules of the knowledge-based economy. This rule is that of continuous learning. The contribution offers an in-depth look at such a rule and the challenge it poses for Malaysian workers as country moves towards a knowledge-based economy.

Chapter 4

Competing in the Global Knowledge Economy : the Challenges for Malaysia by Dr. Cheng Ming Yu

- Looks at specific barriers that would serve as a challenge to Malaysia. Some of these include, digital, language, and personnel to mention a few.

Chapter 5

Challenges and Potentials in Human Resource Development in a Knowledge-based Economy : A Malaysian Perspective by Amat Taap Manshor

- Deals with the critical challenges that Malaysia will face in its ability to produce the requisite human resource (knowledge-workers) to spur its growth and development as it moves towards knowledge-based economy. Also offers some suggested solutions to solve such a problem.

Chapter 6

Banking in a Knowledge-based Economy by Dr. Balachandran B. Shanmugam

- Looks at electronic banking (e-banking) in Malaysia, the issues confronting such a sector and offers some possible solutions.

Chapter 7

The Multimedia Super Corridor and its Contribution towards Malaysia's Efforts to Move to a Knowledge-based Economy by Dr. Sayed Hossain

- Looks at a project by the government of Malaysia in the form of Silicon Valley in California, the MSC. He looks at the evolution, progress, and problems faced by the MSC and offers some suggestions to solving these problems.

Chapter 8

Moving Towards a Knowledge-based Economy : The Road Ahead for Malaysia by Dr. David Abdulai

- Looks at what lies in the road ahead for Malaysia as it moves towards a knowledge-based economy. The contribution starts with the early phases of the Malaysian economy to the present and charts the road ahead from there.
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Judul : K-EKONOMI - HALATUJU KITA (KERTAS KERJA)
Pengarang : Shahril Shamsuddin
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DARI MANAKAH KITA DAN KEMANAKAH ARAH TUJU KITA?

Sudah 40 tahun kita mencapai kemerdekaan dan kuasa politik negara kini berada didalam kuasa bangsa Melayu, namun bangsa ini jugalah yang begitu jauh tertinggal dari aspek ekonomi.

Dasar Ekonomi Baru (DEB) telah membuka peluang dan harapan untuk meningkatkan penglibatan bangsa Melayu dalam ekonomi. Walaupun keterlibatan bangsa Melayu lebih meluas dalam aktiviti ekonomi negara, namun pencapaian kita masih belum menjejak matlamat yang telah digariskan. Hasrat bangsa untuk memiliki 30 peratus harta negara belum tercapai. Penguasaan sesuatu industri tempatan tertentu oleh orang Melayu masih tidak ketara; dan bilangan golongan profesional dan pengurusan kita masih kecil jika dibandingkan dengan bangsa lain. Sebelum sempat kita mengolah strategi baru meningkatkan pencapaian kita, negara pula diserang krisis ekonomi. Maka bertambah goyahlah (*precarious*) kedudukan orang Melayu secara amnya.

Krisis ekonomi yang lalu telah membawa kesedaran akan kekurangannya kemampuan ekonomi dan pengusaha bangsa kita. *Bargaining power* kita dalam pengelolaan bisnes masih rendah dan kebolehan kita membuat keputusan-keputusan perniagaan agak lemah. Rangkaian atau *network* perniagaan yang dianyam masih belum kukuh atau meluas, dan ini menyempitkan ruang kebolehan bertindak secara taktikal dalam pengelolalan sesuatu bisnes.

Alhamdulillah, dengan pemulihan ekonomi yang kini dialami, kita diberi peluang untuk memperbetulkan kekurangan dan memantapkan kepakaran kita supaya lebih gigih menghadapi cabaran baru ini. Insya Allah.

Sebagaimana revolusi perindustrian yang terdahulu telah menganjukkan struktur kuasa yang lama kepada struktur kuasa yang baru, maka revolusi ilmu yang kini dialami akan menukarkan bukan sahaja struktur ekonomi, malah struktur sosial, struktur politik, dan cara hidup setiap individu secara menyeluruh.

“Knowledge is power”

Maka bangsa yang berjaya menguasai teknologi dan ekonomi baru ini akan menguasai dunia. Apakah dia ciri-ciri ekonomi baru dunia? Bagaimanakah ia merubah kaedah dan daya saing perniagaan?

Penyatuan teknologi maklumat dan komunikasi telah melahirkan perubahan besar dalam corak dan kaedah perniagaan. Hari ini dunia sedang digegarkan dengan e-dagang atau e-commerce.

Apakah dia e-commerce?

Saya mengajak saudara-saudari melihat sejenak perubahan yang telah dibawa oleh e-commerce. Saya akan mengambil contoh industri alat permainan, suatu industri yang telah berkembang dengan pesatnya melalui e-commerce.

Menurut model conventional, rantai nilai atau value chain produk alat permainan, bermula dengan bahan mentah yang dibawa kepada pengilang untuk diproses dan kemudiannya dihantar kepada firma pembuatan atau manufacturer. Firma pembuatan yang biasanya merupakan pemilik jenama, kemudiannya akan

mengedarkan produknya kepada saluran agihan yang meliputi pemborong dan peruncit sebelum produk tersebut sampai ke pembeli.

Dalam rantaian nilai ini, nilai terbesar terletak pada peringkat awal dan peringkat akhir. Peringkat awal melibatkan aktiviti rekacipta dan hak intelektual dan dikuasai oleh pemilik jenama seperti Mattel, Bandai, Nintendo, dan Sony. Peringkat terakhir yang melibatkan aktiviti pemasaran pula dikuasai oleh gedung rantaian seperti Toys R Us.

Dalam model e-commerce rantaian nilai mengalami transformasi yang besar terutamanya dirantaian pengagihan. Tidak seperti model konvensional dimana rantaian pengagihan diasaskan kepada pengedaran secara fizikal dan dikuasai oleh gedung pemborong dan peruncit.

Di arena e-commerce kaedah dan pesaing-pesaing baru bersaing melalui portal internet.

Pesaing-pesaing baru ini adalah firma-firma maya seperti etoys.com, Dr. Toy's yang mencipta nilai tambahnya melalui toy portal. Toy portal adalah sebuah supermarket maya yang membolehkan transaksi dilakukan melalui internet. Kini Mattel atau Bandai boleh memasarkan jenama-jenama mereka seperti Barbie Dolls dan Transformers terus kepada pembeli.

E-commerce telah membawa disintermediation didalam industri. Fungsi orang tengah atau intermediaries suatu produk semakin tidak diperlukan. Dengan menggunakan laman web (web-sites) sebagai gedung dan ruang pameran maya, e-commerce menukarkan peranan aktiviti pergudangan. Malah bagi software downloadable products, inventori fizikal langsung tidak diperlukan.

Dengan e-commerce pereka dan pencipta tidak lagi perlu melalui orang tengah conventional seperti pengurus jenama, gedung penerbitan, atau studio pengeluaran. Seorang pereka atau pencipta kini berpeluang memasarkan rekaan mereka, seperti software downloadable products, terus kepada pembeli. E-commerce telah mencipta suatu masyarakat menegak atau vertical community meliputi semua yang terlibat dalam rantaian nilai sesuatu produk.

Pembekal bahan mentah, pembekal harta intelektual, firma pembuatan dan pemasangan, pembeli pukal dan pemborong, peruncit, semuanya kini bergabung didalam suatu portal.

Cuba saudara-saudari bayangkan peluang yang dibuka kepada seseorang perekacipta untuk menembusi pasaran dalam ekonomi baru sekiranya produk yang mereka anjurkan tepat mengenali pasaran.

Perubahan kaedah perniagaan yang dibawa oleh e-commerce menyebabkan fungsi maklumat menjadi kritikal. Dari segi infrastruktur, lokasi geografi rantaian nilai tidak lagi penting. Kesannya, peluang dan cabaran ekonomi baru semakin bersifat global.

Pasaran kita adalah dunia.
Pesaing kita juga adalah dunia.

Kegiatan ekonomi kini didorong oleh industri berasaskan ilmu pengetahuan atau knowledge based industry. Kepakaran dan penguasaan teknologi seperti data mining dan data warehousing dapat memberikan kelebihan bersaing atau competitive advantage kepada syarikat-syarikat Melayu. Dengan adanya perlindungan hak intelektual pembangunan, idea-idea dan teknologi baru bercambah dengan pesat. Ini pula akan mendorong perubahan yang pesat didalam ekonomi.

Kepesatan penjana ilmu dan maklumat menyebabkan berlaku suatu keadaan dimana penciptaan nilai melalui combination dan permutation pengetahuan yang dimiliki sesebuah syarikat secara individu dapat mengatasi nilai ekonomi agregat mudah syarikat-syarikat ini.

Bagaimana ini berlaku? Kepesatan perubahan teknologi menyebabkan tidak ada satu syarikat yang dapat menjana dan memiliki semua teknologi terkini. Kemampuan satu syarikat untuk mengeksploitasi teknologi yang terjana secara menyeluruh juga terhad. Disini kemahiran mengesan dan mencantumkan teknologi dalam berbagai permutasi merupakan suatu kebolehan yang sangat kritikal.

Mesej yang ingin saya tekankan dalam huraian saya hari ini ialah, bahawa kaedah perniagaan conventional tidak lagi sesuai dengan keperluan ekonomi baru. Kemunculan kaedah perniagaan baru berasaskan e-commerce membuka peluang dan cabaran baru.

Cabaran pertama kita ialah bagaimana memanfaatkan reach and richness atau jangkauan dan kekayaan maklumat dan ilmu pengetahuan. Seperti yang kita telah sama-sama lihat jangkauan dan kekayaan maklumat telah meleburkan model perniagaan conventional. Maka, kita harus peka dengan perubahan dan sumber ilmu pengetahuan atau teknologi baru. Kita haru tahu bagaimana mendapatkan, mengguna, memproses, dan menguruskan ilmu pengetahuan.

Sumber maklumat dan ilmu pengetahuan boleh berada dimana-mana. Kebolehan mengesan dan mengadun, melalui percantuman dan permutasi, pelbagai maklumat dan ilmu pengetahuan kepada sesuatu yang mempunyai nilai ekonomi harus dijadikan cabaran utama kita. Didalam ekonomi baru, atau "k-ekonomi", kebolehan tersebut merupakan hak intelektual atau intellectual property yang boleh di perdagangkan dan asas kepada kekayaan sesuatu negara.

Untuk menghadapi cabaran k-ekonomi, sumber-sumber atau resources yang sesuai harus disediakan. Pembangunan infrastruktur dan sumber-sumber teknologi maklumat dan komunikasi merupakan syarat dan keperluan utama untuk menyertai ekonomi berasaskan internet. Infrastruktur yang lengkap diperlukan untuk mengagihkan maklumat secara pantas dan menyeluruh. Contohnya, tanpa infrastruktur yang baik, pelawat-pelawat internet akan menghadapi kesukaran untuk mengakses portal-portal yang di bangunan di Malaysia. Bagaimana pun untuk membangunkan infrastruktur yang baik kita harus memiliki dan menguasai teknologi terkini. Ini hanya tercapai sekiranya kita mempunyai sumber manusia yang berkebolehan tinggi.

Bagaimanakah kita dapat membangunkan sumber manusia yang mampu meneroka peluang dalam bidang-bidang baru yang memerlukan kemampuan pengurusan maklumat secara global seperti infomediaries dan internet marketer, dan dalam industri hak intelektual sebagai pereka, pencipta, dan developer of standards?

Apakah dia nilai-nilai dan kemahiran-kemahiran baru yang diperlukan itu? Apa yang mesti kita lakukan untuk membangunkan ilmu pengetahuan yang boleh kita jelmakan kepada harta intelektual? Apakah ciri-ciri usahawan berdaya saing dalam k-ekonomi?

Cabaran yang mungkin paling kritikal yang dihadapi ialah kekurangan modal. Lazimnya, orang Melayu tidak mempunyai modal atau memiliki modal yang sangat kecil. Ini merupakan suatu halangan untuk melabur secara besar-besaran dalam e-commerce dan melipat gandakan usaha penyelidikan dan pembangunan atau R & D bagi memperkasakan lagi asas teknologi kita.

Kaedah harus dicari untuk mendapatkan modal, mengumpul dan menyalurkan dana modal tersebut kepada usahawan-usahawan Melayu, dengan menggunakan sumber-sumber atau institusi-institusi untuk membangunkan asas modal dan menyalurkan dana tersebut kepada pengusaha Melayu. Kita harus

melihat keseluruhan dunia sebagai punca sumber modal dan tidak menghadkannya dalam lingkungan negara kita sahaja.

Bagaimana harus kita, anak-anak bangsa Melayu menyambut cabaran dan peluang yang timbul akibat gelombang perubahan teknologi dan ekonomi ini?

Pertama sekali, kita harus work and network. E-commerce adalah global sifatnya. Pasaran dan persaingan e-commerce juga merentas seluruh dunia. Oleh itu selain daripada menggunakan sumber-sumber yang tersedia dikalangan kita dan dinegara kita secara cekap dan optima, kita juga harus melangkah ke arena global. Kita harus sanggup bukan sahaja bekerja keras tetapi bekerja dengan bijak. Kita tidak boleh memencilkan diri kerana ia mengurangkan potensi kita mendapatkan sumber-sumber yang diperlukan dan menyempitkan tingkap peluang kita. Kita harus membentuk network bukan sahaja dikalangan kita, tetapi, merangkumi dunia dalam semua bidang; network teknologi, network pemasaran, network modal, network sistem pengeluaran dan sebagainya.

Network teknologi misalnya harus meneroka peluang mengesan dan mendapatkan teknologi dari berbagai pihak termasuk firma, universiti, dan lain-lain pusat R&D yang terdapat diserata dunia. Disebabkan tidak ramai dikalangan usahawan Melayu yang mempunyai access kepada sumber-sumber global, kita harus membentuk network tempatan yang dapat menjadi penghubung dalam pembentukan network global.

Kedua ialah compete and cooperate. Metafora peperangan sudah kurang sesuai bagi menggambarkan corak persaingan perniagaan hari ini. Hari ini firma harus berupaya untuk bersaing serta bekerjasama pada masa yang sama.

Kita boleh bekerjasama membangunkan teknologi baru dengan sebuah firma tetapi bersaing dalam mendapatkan pasaran dengan firma yang sama. Ilmu pengetahuan bukanlah sesuatu yang unik kepada bangsa Melayu. Kita harus bijak mengesan dan membentuk kerjasama dengan kumpulan-kumpulan lain, tidak kira dari mana mereka datang, atau, bangsa apakah mereka. Dorongan persaingan global yang semakin sengit meminta kita membentuk hubungan simbiotik dengan kumpulan lagi bagi membangunkan teknologi, pasaran, barangan dan perkhidmatan.

Ketiga kita perlu usahakan pembentukan industri berkelompok yang menggabungkan firma bagi tujuan pembangunan produk, teknologi, perkhidmatan dan pasaran tertentu. Disini saya melihat peranan syarikat tunjang atau anchor company Melayu sebagai pemimpin dalam kelompok tersebut. Kita perlu menguruskan peluang-peluang yang tersedia kepada usahawan kita dibawah naungan syarikat tunjang. Syarikat-syarikat tunjang bukan sahaja boleh menggembeling usaha menarik modal dan menyediakan mekanisma penyediaan dana kewangan tetapi juga bertindak sebagai role model kepada usahawan-usahawan baru. Syarikat-syarikat tunjang harus bertindak mendekati usahawan kepada pasaran, mendedahkan mereka kepada teknik pengurusan terbaik atau best practices didalam sesuatu industri, dan mempelopori pembentukan perkongsian bijak atau smart partnership dan networking. Syarikat tunjang harus mempunyai matlamat pencapaian yang jelas supaya objektif utama untuk membantu usahawan bumiputera tidak diabaikan.

Untuk menyokong pembangunan konsep industri berkelompok, pihak kerajaan boleh memainkan peranan yang strategik dengan cara menyediakan projek-projek tertentu. Projek-projek ini mesti mempunyai matlamat tertentu yang dapat menyalurkan sumber-sumber yang diperlukan bagi membangunkan keupayaan usahawan-usahawan Melayu. Saya berpendapat pelaksanaan konsep ini melalui pengurusan syarikat-syarikat tunjang yang berdisiplin adalah sistem terbaik untuk membangunkan usahawan-usahawan Melayu.

Usaha kerajaan menyediakan negara menghadapi k-ekonomi adalah sesuatu yang patut dibanggakan. Contoh terbaik ialah projek Multimedia Super Corridor atau MSC. MSC dan flagshipnya harus dilihat sebagai usaha kerajaan mendekati syarikat teknologi tinggi tempatan kepada persekitaran teknologi maklumat dan patut disokong. Kita harus meneliti semula ideal projek MSC iaitu sebagai kenderaan yang membuka peluang untuk kita melibatkan diri mengaplikasi konsep-konsep seperti e-commerce, e-government, virtual manufacturing, dan sebagainya. Untuk menyahut cabaran kerajaan ini, kita harus menentukan jenis teknologi yang ingin ditekankan dan beri tumpuan, dan bekerjasama dengan kerajaan mengeksplotasi teknologi tersebut melalui projek-projek strategik yang disebutkan tadi.

Sebagai penutup, saya meminta agar kita semua bersama-sama merenung halatuju dan masa depan kita. Yakinlah dengan kemampuan golongan profesional muda Melayu yang ada untuk dijadikan tulang belakang dan pemangkin perubahan sikap, budaya, dan kudrat bangsa.

Marilah kita bangkitkan kesedaran dan sense of urgency dalam diri dan masyarakat Melayu. Kita berada dipersimpangan jalan antara kegemilangan atau kemunduran bangsa. Marilah kita berpandang jauh, menyediakan diri sepenuhnya bagi menghadapi cabaran dunia baru.

Ada pepatah Melayu yang berbunyi: Jikalau takut dilambung ombak, jangan berumah ditepi pantai. Tetapi para hadirin sekalian, mahu tidak mahu, kita sekarang berada dipesisiran pantai zaman dimana ombak dan gelombang perubahan sudah menampakkan rentak ganasnya.

Sesungguhnya, diatas bahu kita semualah terpikul masa depan bangsa.

Title : MAHATHIR MOHAMAD : A VISIONARY & HIS DIVISION OF MALAYSIA'S
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Dr. Mahathir Mohamad's vision to move Malaysia into the knowledge-based economy is thus laudable. It would help the country realize its goal of becoming a developed society by 2020 as well as help Malaysians benefit from the knowledge era. One of the strategies set out by Dr. Mahathir for Malaysia to attain developed-nation status and to be a knowledge society is through the setting up of the Multimedia Super Corridor (MSC). Dr. Mahathir states his vision as follows :

"Malaysia is crossing the threshold into the information age with hope and confidence. We are embracing the borderless world, and opening ourselves up to new forms of partnership and commerce made possible by revolutionary changes in computing, communications, capital flows and consumer tastes. While some see these changes as a threat, Malaysia sees them as an unprecedented opportunity to 'leapfrog' our development and achieve our Vision 2020 goals"

The compilation of Dr. Mahathir's speeches in this book is a testimony to such a vision. The speeches, some of them delivered by Dr. Mahathir before the MSC project started, points to his vision and genius. Each chapter in the book is followed by brief commentaries from Dr. N. Abdulai, a lecturer from Multimedia University.

Chapter 1

Advancements in Communications Technology

Dr Mahathir in his opening speech of the CTO meeting, mentioned about the rapid changes in the telecommunications industry due to rapid advancements in technology and the impact it would have on countries and governments, especially in developing countries. He raised the concerns about countries cannot afford not to get on the technology bandwagon, about the potential lost of investments and the consequences for employees that could ensue because the sector requires huge investments and also the troubling issue of the gapping digital divide that rapid advancements in telecommunications technologies have produced.

Chapter 2

E-Migration: Rising to the Challenges of the New Economic Frontier

Cost as outlined by Dr Mahathir in the speech is the challenge Malaysia and many developing countries would face with the advent of the knowledge-based economy companies like dotcoms who could set up operations anywhere in the world. Indeed, it is difficult to determine where such companies are located using just their URLs. Thus a reduction in tax revenues could affect proposed development projects that are supported by governmental subventions.

Chapter 3

Strengthening Growth and Mutual Prosperity

Advancement in the global economy in the area ICT is ushering in a knowledge-based era, where knowledge and ideas from the basis today for advancements of countries. Britain and Malaysia are two countries that share a long tradition of trade and economic ties that dates back to about two centuries ago. Dr Mahathir elaborated at length on his tradition and have given figures to show how these relationship have benefited both countries and how the two countries should continue to collaborate on such a front.

Chapter 4

Smart Partnering for the New Economy

One option is for developing countries to engage in smart partnership. According to Dr Mahathir, the smart partnership concept can help developing countries unify their concerns and actions. Furthermore, it would help them develop a common stance on issues affecting their collective interest. The smart partnership dialogue can also serve as an avenue for developing countries to share views and experiences.

Chapter 5

Asian-African Cooperation for Development

Asia and African countries have a lot in common. Most of the countries in Africa and Asia went through the colonization face; all are developing out for ways to better the lot of their people. With the convergence of ICT, especially in this era of globalisation, the challenges facing Africa and Asian countries are daunting. These countries would now have to look for ways to face the dangers arising from changes in the patterns of world trade and finance, and the arrival of the New Economy.

Chapter 6

Transcending the Divide

The speech starts out by pointing out that developing countries would need a miracle to transcend the present global digital divide. Much as the poverty gap has been a problem that development economist have grappled with for decades, the digital divide promises to be worse.

Chapter 7

Human Resource Development in the 21st Century

With ICT leading the way in the knowledge-based economy era, competencies in those areas need to be enhanced if Asean countries are to remain competitive. The imperative to train the requisite management, mid-level and lower-level knowledge-workers for the k-economy is inevitable.

Chapter 8

Sharing the Fruits of Globalisation

Dr Mahathir is speaking to the fact that intellectual property rights, the currency of the knowledge-based economy in the form of know-how and know-what is the new barrier to the development of developing countries. The call for developed countries to assist developing countries in accessing knowledge is in no way saying that they should not profit from their intellectual property rights.

Chapter 9

Mimos's Role in Malaysia's Move Towards a Knowledge-based Economy

Mimos also played an important role as an ICT consultant to the government in setting up the MSC. The MSC is going to play an indispensable role in moving Malaysia towards a knowledge-based economy. Indeed, as the ICT consultant to the government, Mimos would help the government realize its Vision 2020.

Chapter 10

Small and Medium Industries: Critical Components of Industrial Growth and Development

Dr Mahathir has sounded the clarion to call Malaysian Small and Medium Industries (SMIs) about the arrival of the knowledge-based economy and the challenges it poses. He has also elaborated on the numerous benefits the knowledge-based economy can offer.

Chapter 11

Forces that will Shape Our Common Digital Future

To speed up the process for companies to set up in the MSC, the Malaysian government has made it easier for inventors to move in and out of the corridor. It has thus designated all knowledge-workers in the corridor as special guests; hence the entry to and exit out of the country would be without hassle.

Chapter 12

The MSC and the Growth of Electronic Commerce

Dr Mahathir points out the importance and unprecedented role e-commerce would play in global business in the years ahead. He also offers an insight into how Malaysia is preparing itself to benefit from this unprecedented new way of doing business.

Chapter 13

On the Threshold of the Cyber Revolution

The Malaysian government consider Canada a world-class IT country with numerous multimedia companies operating within its borders. It has one of the highest telephone, computer and cable penetrations in the world. Besides, Canada is at the forefront of the fibre-optic technology revolution. For Canada, investing in the MSC would not be a new trend. It already has trade and investment ties with Malaysia worth billions of ringgit. It would therefore be an opportunity to expand its business in the country.

Chapter 14

Asean's Global Trade with Latin America

Dr Mahathir is encouraging Argentine businesses to invest and increase their business presence in Malaysia and to use the country as a spring-board to produce and distribute their products to other Asean countries. This would be more beneficial as the countries in Asean are moving towards establishing an Asean Free Trade Area (AFTA).

Chapter 15

Inventing Our Common Future

Dr Mahathir hope that the MSC would make a ripple that would cause a tidal wave that could engulf the country, and hopefully transform it into a global multimedia hub in its wake. Malaysia's IT agenda would provide the policy framework to help the country realize this transformation. But this transformation would not happen if Malaysia clings to the status quo, videlicet, "the old production economy". Malaysia must embrace the new "knowledge-based economy".

Chapter 16

A Global Bridge to the Information Age

Dr Mahathir sees the MSC as a "global bridge to the information age". The MSC would be a global testbed for new ideas and products. It would also be the R&D center for information-based industries to develop new codes of ethics for our global village.

Chapter 17

The MSC: Realising a Vision for Malaysia

The vision of Dr. Mahathir is to see the MSC contributing and leading Malaysia's efforts into the knowledge-based economy. Most of Dr. Mahathir's visions as it pertains to the MSC have been attained so far and some are in the pilot stage. The MSC has attracted numerous world-class companies since its inception based on his vision.

Chapter 18

Application of Information and Communications Technology for Development

Leadership of Malaysia takes a proactive role and set the agenda for the nation's move towards a knowledge-based economy. One of the proactive roles of the government was to set up the National Information Technology council to provide the requisite leadership to prepare Malaysia benefit from the IT revolution.

Chapter 19

The MSC: An Opportunity for Japanese Industry

Dr Mahathir hopes that the MSC would propel the Asia-Pacific region into the information age and has thus invited the involvement of Japanese businessmen in the project. The MSC thus an opportunity for Japanese industry to extend its enterprises while enhancing their profitability and productivity.

Chapter 20

Evolution of a Global Information Society

The new information era according to Dr. Mahathir can foster greater international understanding amongst countries. Using ICT, people can learn about other people, cultures, way of life and values. This would contribute to creating more globally oriented citizens, weaning most narrow-minded people away from their parochialism. The fostering of understanding and the brotherhood of man would foster peace and prosperity for all in this information age.

Chapter 21

The Digital Economy and the Borderless World

Some of those strategies that the government of Dr Mahathir has put in place to propel Malaysia into the knowledge-based era is the deregulation of the telecommunications industry in the country, establishment of a National Information Technology Council (NITC), to formulate IT policy for the country in its efforts to move towards a k-economy, and the establishment of the MSC. Of all these strategies, the MSC is the boldest and it is proposed to be the most innovative in the region.

Intellectual capital accounting and reporting in the knowledge economy

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Abstract

Claims the greatest challenge facing the accounting profession is understanding the huge difference between its balance sheet and market valuation. This gap represents the core value of the company - its intellectual capital represented by brands, products, competitive advantage, patents, trade marks, customer relationships, R&D, human capital etc. The present financial accounting framework is criticised, especially in the USA and Europe, as inadequate and failing to communicate the most important assets and resources of today's business, known as intangible assets or intellectual capital. As a result, there is a huge value gap and distortions between a business entity value as reported in the financial statements with the value put by investors on the stock market or even in merger and acquisitions cases. In the new knowledge economy (k-economy), knowledge rather than physical assets drives innovations, revenue and profits growth, and nurtures new competitive advantages. Looks at the challenges encountered by accounting and where it is heading in the k-economy environment.

Article type: Literature review, Technical.

Keywords: Intellectual capital, Knowledge, Economy, Financial reporting.

Content Indicators: Research Implications* Practice Implications** Originality* Readability*

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Introduction

Knowledge economy

Where and what are we in today? Peter Drucker has the answer to it: "We are entering the knowledge society in which the basic economic resource is no longer capital, or natural resources, or labour, but is and will be knowledge". The twenty-first century is a century of knowledge economy (k-economy). Prior to k-economy, the world was on industrialised or production economy (p-economy). In p-economy, the economy wealth production factors are physical assets such as land, labour, money, machines, etc. The mix of these economy factors generates wealth for the economy. The use of knowledge as a production factor was quite small. In k-economy, however, knowledge or intellectual capital (IC) as an economy wealth production factor takes precedence compared to physical assets (see Figure 1). Charles Goldfinger sees k-economy from three dimensions. First, the demand is for intangible artifacts (services). Second, the supply side or production factors are dominated by intangible assets. Third, new rules of business organisation, competition, and valuation emerge. The business landscape, as a result, has changed tremendously. The twenty-first century business and economy is about investments in information, IT, Internet e-commerce, software, brands, patents, rights, research and innovations, product breakthroughs, globalisation, global reach, and global customers base, worldwide network, which are all knowledge, IC and intangible assets (IAs) rather than physical assets.

John Kendrick (1999), a well known economist in the USA, reports that in 1929, the ratio of intangible business capital to tangible business capital was 30:70 percent, but by 1990 it was 63:37 percent. According to Professor Baruch Lev, the evidence for transformation from p to k-economy is apparent even in non-high tech companies,

where these companies have also started to embrace and use the k-economy production factors in their business applications such as Web sites, e-commerce, branding, etc. Based on S&P 500, the market value (MV) to net assets value (NAV) of these non-high tech companies was greater than six by the end of the twentieth century. This means that traditional accounting that measures only physical assets of a company accounts for only 10-15 percent of the market value of these companies. So what makes up the other 85 percent market value? Asked Charles Goldfinger (November, 1999), are these gaps a collective madness of the market or inadequate traditional measures? Intangible assets (IA) are fast replacing physical assets, but there seems to be a complete stagnation in accounting measurement and reporting on intangible assets, said Lev.

Intellectual capital (IC). What is it?

It must be noted that really there is no universal definition on IC until today. A total of 80 experts from all over the world who congregated at the 3rd International Conference on the Management of Intellectual Capital in Hamilton, Canada, 1999, consensually agreed that it is too early to talk about IC definition. According to them, too much of the nature of IC is still unknown and hard to capture in explicit terms. IAs are still a new subject, having found its way into the whole world in 1994 when *Forbes* magazine published how Scandinavian countries were treating their intellectual assets. However, there are a few definitions which are worth considering. According to Stewart (1997), "... IC is intellectual material - knowledge, information, intellectual property, experience - that can be put to create wealth". Another simplistic definition is the difference between a firm's market value and the cost of replacing its assets. Says Lev, "It is extremely difficult to come up with a comprehensive definition of intangible assets ...".

IC classifications

The truth is that there is still no universal common classifications on IC. The widely quoted classification is by Leif Edvinsson, a leading thinker in IC from Skandia Insurance, a Swedish based insurance company. He breaks down IC into three areas. The first is human capital, which includes employees' collective competence, capabilities and brainpower. The second is organisational capital such as a firm's policy and procedures, customised software applications, research and development programmes, training courses, patents, and the like. The third is customer capital, i.e. relationship with customers, suppliers, industry associations and market channels. It is also interesting to compare the above classifications with the one used in the Magic project sponsored by European Commission's Information Society Technologies (IST). Magic sees each IC as a "flow of capital" interwoven to each other in a continuous stream rather than just a terminology used to describe things. There are four types of IC as per Magic classifications, i.e. human capital, organisational capital, market capital, and innovation capital. Human capital is described as the basic potentials of an organisation, while organisational capital is described as the ability to transfer these (human) potentials to products and services. Market capital refers to the competence to manage and integrate the external interfaces with the organisation's stakeholders. Finally, innovation capital refers to the capability to improve and develop continuously all potentials and environment variables. Other quite interesting classifications and their descriptions are given by Eustace *et al.* (1999), who classify IC into two, i.e. intangible goods and intangible competences. Intangible goods are assets which have enforceable ownership rights, which can be bought, sold, and stocked in disembodied form and can also be securitised. Examples are licenses, quotas, franchises, copyright, patents, trademarks, brands, design, know-how, and trade secrets. These intangibles could to a certain extent be objectively valued. On the other hand, intangible competences refers to distinctive factors of competitive advantage that differentiate a business from its competitors. These include innovation competences, structural competences, market competences, and human resources. These intangibles are the very soft part of a business and are difficult to isolate and value.

Challenges to accounting and reporting

The current accounting and financial reporting practices have been criticised by many business leaders, especially in the high tech industries and financial analysts, as "not keeping pace" with the vast changes in the business world. Financial statements fail to measure and show the "most significant building blocks of business", which is the human capital, organisational capital, and customer capital, according to Steven Wallman. As a result, these financial statements fail to communicate to the management and investors at large what and where is the state of the business when it comes to IAs and IC development which is said to be the driving factor for future innovation and profits growth. In the k-economy, more and more businesses are placing greater reliance on IC to nurture new competitive advantages and innovate for future growth, rather than relying on physical assets. This means that more money would be "invested" on IC development. Ironically, the accounting profession has a negative view on money spent on IC. Rather than seeing it as a "productive investment" for future innovations and growth, they see it as a loss and the more a company spends for its IC development, the greater the loss would be. It is very sad that this "myopic" viewpoint comes from a profession which claims that they are the professional advisors on business financial matters.

According to Leif Edvinsson, he sees four important new roles for accountants. First is designing accounting information systems for managing and monitoring IC. Second is to come up with generally accepted reporting standards for IC, including measurements, indexes, benchmarks and policies. Third is to audit and certify the IC. The fourth and final new role is to advise clients on patterns and systems for value creation out of IC and management. According to Eustace *et al.* (1999), redesign of structural resources which involve new reporting systems and new auditing systems needs to be made.

Methodology

This article is a descriptive study based on "secondary information" such as international seminar papers on IC, magazines, book excerpts, international accounting standards, and Web sites.

Research objectives

- To identify how IC is measured and reported in the financial statements.
- To assess whether the current accounting and financial reporting framework is adequate to undertake challenges posed by the emerging IC economy.

Survey of literature

More than 37 articles were surveyed. However, only 16 articles which are of high quality, mainly from international seminars, were selected for detailed discussions. Articles surveyed encompass definitions of IC, its trends and significance, limitations of existing financial accounting framework, why it is important to measure and report IC and what are the problems encountered, progress made by accounting bodies in relation to IC, report on surveys on IC measurement and reporting, techniques and methods that could be used to measure IC, and many more.

Analysis and discussion on literature surveyed

The present accounting framework

Lev, Strassman, and many others, including accountants themselves, agree that the current accounting system has serious deficiencies. Not only does accounting fail to capture IC, but also accountants do not treat assets as assets, says Lev. *A look at FAS 2*, which was issued in 1974 or 26 years ago, which requires expenses incurred on IAs such R&D, patents and trademarks to be expensed off when incurred confirms Lev's argument. This is also agreed by Brennan (1999), who says that the current accounting framework, which is transactional and realisation based, only recognises the existence of an item when transactions with third parties take place. It assumes that when there is no transaction, then no value is created. However, assuming that IC is not there until a transaction proves otherwise is no longer acceptable to the investors and business communities in the era of k-economy where IC forms a major portion of a company's production factors. IC will always be there from day one when a business is formed and it must be well managed just like any physical production factors. Therefore, closing our mind to IC's existence and not taking any serious effort to measure and manage it would be very harmful for a business in today's business environment. According to Leadbeater and Demos (1999), traditional accounting approaches, which are based on transactions, to measure assets, do not work well for intangibles as IAs are not actively traded unlike physical assets. This is the main reason why only upon mergers and acquisitions, suddenly we have a huge "goodwill", which essentially are IAs, sitting on the balance sheet which were not even there yesterday. This has been the case for more than 30 years and the accounting community did not make any serious attempts to really understand what makes up the "goodwill" figure. This is also one of Lev's disappointments. Said he, "If you develop something, it is immediately expensed. If you buy the same thing, it is not expensed and you have an asset. This is nonsense".

The present accounting framework objectives

Askme Corporation (2000) reports that the average *Fortune* 500 company loses \$64m per year because of ineffective knowledge sharing. Over 50 percent of knowledge workers' time is spent looking for information, 20 percent of employees' time is spent replicating answers for others. Less than 20 percent of knowledge available to the company is actually used. Hence, IAs are to be captured, retained and reused to realize both bottom line benefits and profitability.

According to PwC, all of the above frustrations are well understood as the current accounting framework is meant to meet certain objectives to safeguard the interest of the public, which among others are due care, consistency, objectiveness and verifiability in order to reduce subjective elements and leaving less room for management opportunism. While these are being applauded, the point is that there is more that needs to be done by the accounting community to remain relevant in the era of k-economy and one of the key challenges is to measure and report on IC if accounting still wants to play a "service" role to the management.

Benefits of IC measurement and reporting

The famous saying goes "What gets measured gets managed", as management needs to know where a business is in the creation and development of IAs so that they would know what next needs to be done to remain competitive. Accounting needs to help management in this area. PwC summarises the benefits of IAs reporting as follows: it enhances transparency, resulting in lower cost of capital and thus higher share price, it helps inspire a sense of faith among the workforce and other major stakeholders, it supports long term vision via communication,

and it can also be used as a marketing tool. In addition to the above, according to Perrin (2000) (based on a survey carried out on 51 companies in the UK by Policy Publications in association with the University of Luton and *Finance Director* magazine), up to 56 percent of their revenue is already contributed by IC. So, there is a need to know which IC drives what revenue, and what ICs are worth investing.

Slow progress in IC measurement and reporting. Why?

Having agreed on the importance of measuring and reporting IAs, what delays this from being achieved? PwC presented their findings on some of the drawbacks associated with reporting IC which might influence management decision on whether to report and how much to report to the public on their IC. The drawbacks are as follows: it causes competition-sensitive information to end up in the public domain, it leaves room for information manipulation, it creates user liability risks by presenting future oriented information which cannot be substantiated, it increases operating costs as a result of new rules and bureaucracy. Lev says that presently skepticism for not valuing and showing IC is more dominant. Reasons being, IC values are very subjective, and unlike tangible assets, IC could vanish overnight and thus, fostering uncertainty among investors and managers rather than helping them. But Lev says that this skepticism is overblown as not measuring and reporting IC is a more serious problem for the management of a company's long term performance. Strassman (1998) noted that numerous attempts to measure or value IC over the last two decades has run into the difficult problem of pricing such assets. This problem taught practitioners that the value of intellectual property is in its use, not in its costs. He said that now, it is widely understood that the costs of acquiring knowledge and the profit generation potentials of such knowledge are unrelated. He added that this is the reason as to why attempts to include IC on the balance sheet have failed.

PwC says that there seems to be more problems in capitalising IAs in the financial statements than expected. If IAs are capitalised at cost, problems that would be encountered include uncertainty surrounding the possibilities to realise such assets, it would not be a good indication of such assets' economic value, plus knowledge is not subject to diminution in value, unlike tangible assets. If IAs are capitalised based on economic value (future discounted cash flow), then another set of problems would emerge. First is the subjectiveness of the cash flow projection, which is strongly dependent on changes in interest rates, inflation or future outlook. Second, IAs' interweaving makes it difficult to value human capital or technology independent of the value of client base. Third, for the same reason, it is difficult to break down the total economic value of IAs into individual IAs. Bornemann *et al.* (1999) understand this phenomenon and rightly point out that standards for measuring and reporting IC is still in its infancy, confused and unstructured, which is normal for a new discipline. They go on to say that today's IC management is fraught with difficulties as it tries to address the issue of management excellence, which is very complex, rather than focusing on IC measurement alone. This overburdens its agenda. They say that there are already many universal management models such as TQM, BPR, HRD and BSC which are meant for evaluating management excellence. Therefore, measurement and reporting on IC need not be another one.

Brennan also believes that there is still a long way from knowing what are the best practices for IC measurement and reporting. These limitations are also shared by International Accounting Standards Committee (IASC) Secretary General upon issuing "IAS 38: Intangible Assets" in September 1998: "Knowledge about IAs particularly how to value them is still in its early days. IAS 38 reflects the current limits of this knowledge, focusing on reporting the cost of IAs ...". The reality about IC reporting is summed up by Brennan as: "What is needed is more time for widespread experimentation before any conclusions could be made".

How does the accounting profession lend its help?

Amidst all this confusion on how to report on IC, how does the accounting profession lend its help? IASC via IAS 38 has expanded the scope of IAs to include, among others, advertising, training, and start up costs on top of the present R&D and goodwill. It also allows for the first time "internally generated" IAs to be capitalised alongside "acquired" IAs. Despite this positive development, IASC has not largely departed from its old "industrialised" paradigm in tackling the capitalisation of IAs and IC when it sets unwarranted criteria for the purpose. IAS 38 requires that, for capitalisation purposes, an item must meet the definition of IAs when we currently know there is no comprehensive definition of IAs. Second, it requires that IC must be separately identifiable and distinguishable from other assets. This is also impossible to meet, as we already know ICs are interrelated and interwoven with each other. PwC has this to say: "intangible assets interwoven ness makes it difficult to value human capital or technology independent of the value of client base". Third, the company must demonstrate a clear control over IC. It is very difficult to show how a company has control over human capital and customer capital, especially customers base. The Canadian Institute of Chartered Accountants has highlighted this difficulty in 1998 stating, "organisations do not own or control all forms of IC". Bornemann *et al.* also highlighted that the nature of intangibles result in IC being regarded as less accessible by a company as long as it resides in the heads of the people or in the culture created by the company. This means that the issue of having a clear control over an IC or IA is difficult to demonstrate. Fourth, a company must be able to show that there is a probable chance of returns from IC. Bornemann *et al.* believe that this shall not be made a criteria for capitalisation as nobody knows with certainty on future returns, be it for physical assets or IAs. Financial accounting standards on future returns from physical assets do not rely on facts, rather they rely purely on accounting conventions. Their future returns are as uncertain as that of IAs. Furthermore, it is difficult to associate and link returns to a particular IC or IA. Fifth, the cost of IC must be able to be measured reliably. By these accounts, IAS 38 is seen as not a practical and logical

solution for IC measurement and reporting since most IC would not be able to meet the established criteria and the expenses incurred in developing them would be immediately expensed.

The US Financial Accounting Standard Board (FASB) has not come up with any new standards to help companies in the measurement and reporting of IC. Despite heavy criticism in the USA on accounting treatment for IAs such as R&D, and brands, FASB still maintains its old rule stated in FAS 2 which was issued in 1974 or 26 years ago requiring that costs incurred on IAs such as R&D be expensed off when incurred. However, as per FAS 86, "Software development costs" is allowed to be capitalised after the product reaches "technological feasibility" i.e. the product has an economically viable future. Another major weakness is that "acquired" IAs from a third party are allowed to be capitalised while internally developed IAs must be expensed off immediately.

Maybe all these confusions and inconsistencies are as a result of shallow understanding on the nature of this IC, its behaviour and its real value prompted Brennan (1999), despite IAS 38 being issued earlier, calling both national and international accounting organisations worldwide to refrain from mandating external reporting requirements and standards for IC or value creation reporting for at least another five years (2004) to give more time for experimentation before best practices could be codified. She says that these bodies should encourage the experimentation and should coordinate research activities among themselves on this subject and promote research priorities and results. The point is, while the accounting profession could wait that long, could the business communities?

Are there early adopters?

In the absence of an acceptable IC measurement and reporting standards plus all the above confusion, are there companies which have measured and reported on their IC?. In fact there are. There are a few companies, so called the early adopters, especially in Europe, which have already started to measure and report their IC for internal consumption and management as well as for external reporting. They are doing what Brennan says: "experimenting", which is essential for future standards development. The Danish Trade and Industry Development Council discussed this development in its report (1999) by referring to ten Danish and Swedish companies, which use intellectual capital accounts (ICA) as a tool to measure and report on their IC. The ten companies are PLS Consult, Ramboll, Skandia, Consultus, Telia, ABB, Sparekassen Nordjylland (SparNord), The Swedish Civil Aviation (SCAA), Sparbanken Sverige, and WM Data. More detail on ICA will be discussed later. In addition, it is also found out that Coloplast Group, which is a Danish healthcare company, has published its own "intellectual capital statement (ICS)" alongside its financial statements in its annual report 1998/99.

New measurements for IC: some theoretical methods

If it is said that the present accounting framework is unable to measure IC satisfactorily, then how could IC be measured reliably? Surprisingly, the world is not short of techniques. According to Goldfinger, there are three possible values for IAs, i.e. balance sheet value, market value, or acquisition value. This makes the valuation methods mushrooming. However, the problem is, as Leadbeater and Damos say, these new and non-financial measures are problematic, unrecognised and untested. Now, let us look at some of these new measurement methods. Lev surprisingly rejected the market value less book value method used by the famous Skandia - one of the famous pioneers in IC measurement and reporting, stating that the assumptions governing the equation are unrealistic. Instead, he suggests his own first knowledge capital scorecard method, which measures the knowledge capital value (KCV) as follows:(see equation 1)The merit for this method is its simplicity. However, the major drawback is it is very subjective as most of its components are futuristic and depend on many external factors such as interest rates. Examples are normalised profits, which depend on the assumptions accompanying three years future profits, assumptions on the expected rates of return on tangible and financial assets and the discount rate for knowledge assets, which is again very subjective. This subjectivity will pose difficulties in auditing and verifying the value of IAs. It also affects comparison between companies within the same industry and with other industries. In addition, this method values IC in totality and does not breakdown the value calculated into different ICs classifications. As a result, it fails to indicate the performance of each individual IC. This would not help management in managing each IC, which Lev himself says as one of the very important objectives of IC measurement and reporting. According to Lev, the derived KCV can be used to arrive at IC performance indicators such as knowledge capital margin (KCE/sales), knowledge capital operating margin (KCE/operating income), and ROI of R&D.

Strassman proposes a quite similar method to Lev's. His formula for KCV reads as follows:(see equation 2)Again, as we can see, this method is also full of subjectivities as it tries to derive KCV based on many assumptions. Therefore, this method also shares similar merits and drawbacks as Lev's method. According to Strassman, based on the derived KCV, it is possible to show IC on the balance sheet by adding a line item "Knowledge capital" on the asset side and the corresponding value on the shareholder equity side. Strassman also talks of his IC performance indicator, i.e. "overhead to asset conversion efficiency" (OTACE), that can be used by management to monitor the progress of their knowledge capital. OTACE essentially is based on this formula:(see equation 3)SGA plus R&D costs residual value refers to costs that can be "re-used" or "recycled" for future use of a business without further expense. Examples are expenses on training, developing distribution channels and branding.

While Lev and Strassman's methods attempt to value IC in totality and based on prospective economic value, IAS 38 mandated that IC be valued at costs. Proper records need to be kept to substantiate IC costs capitalisation. This would increase administrative costs and require significant management attention. As IAS 38 is issued by IASC, which is an international accounting body, it clearly demonstrates, from the criteria established, that the old paradigm thinking shaped during the industrial era is hard to die. This has been discussed earlier. Finally, IAS 38 does not discuss on the classifications of IC and IAs. What type of classification is accepted is not known. Despite the above demerits, IAS 38 also has its strengths. First, the costs assigned to IC are objective as they are based on records kept, therefore assisting auditing and verification. Furthermore, valuation at cost is what the users are used to and they can rely on this valuation as a base without too much debate as to its reliability and accuracy. Second, individual IC valuation could be objectively ascertained and would be of service to the management in managing each individual IC.

Bornemann *et al.* strongly suggest that a holistic measurement of intellectual capital or known as LIAHONA-HOMES by Knapp (one of the authors) be employed to measure IC due to the advantages that this model has over EFQM and balanced scorecard (BSC). The advantages are that it provides a solution for measuring interdependent (interlink) performance between IC (IC interwovenness), and it also offers structural and intellectual enabler criteria measurement. For this reason, LIAHONA-HOMES model is said to be more dynamic than BSC and EFQM and therefore able to tackle the dynamic character of a business by combining the variety of IC performance interrelated, which is very much the reality of today's volatile business environment. However, what is not discussed by the authors is that LIAHONA-HOMES model is far too complicated to be implemented compared to BSC and EFQM, and it requires extensive data collection efforts to succeed. There are 16 measurement elements, grouped into 12 element performance indicators (EPI) linked to each other (interdependent) by strings of complicated mathematical multiplication formula. Compare this with five measurement elements for BSC and nine for EFQM with a very simple mathematical additions formulae. In addition, many of the elements and indicators which LIAHONA-HOMES model tries to measure are too abstract to be real, such as integrity indicator, intuition indicator, and inspiration indicator.

New measurements for IC: some practical methods

While the above are theoretical methods, which have not gone through extensive experiments, some surveys show that there are other methods currently being used to measure and report on IC and IAs. Perrin (2000) reports that, based on a survey mentioned earlier, the most popular method to value IC among companies is discounted cash flow earnings. According to the same report, there are also companies which use brand contribution to value their IC. However, brand is only a small portion of total IC and using brand to value total IC is a very narrow approach, which would grossly understate the total IC value.

Research carried out by Leadbeater and Damos in the UK reveal the methods use to measure IC depends on which user group the report is for. For internal users such as managers, say Leadbeater and Damos, they would like to have more information, which allows IC to be managed more effectively. Therefore, for them, a new range of performance measurement and internal corporate reporting which attempts to link financial performance such as cash flow to intangible drivers such as employee quality and morale, customer satisfaction, and so on, are sufficient. Examples of these new measures that have been applied by companies in the UK to measure IC as reported by Leadbeater and Damos include, among others, economic value added (EVA), European Foundation for Quality Management Model (EFQM) which is used by some of the UK's largest companies, among them British Telecom, balanced scorecard (BSC) which is estimated by its founders Robert Kaplan and David Norton to be used by hundreds of US companies as well as by large UK based groups, especially in the financial sector such as NatWest Group and The Halifax, ethical and social auditing which has been used by the UK John Lewis retail chain, Camelot the UK National Lottery operator, and Unipart the car components, environmental auditing adopted by both Shell and BP-Amoco and other large companies in environmentally sensitive industries such as oil and chemicals to report on their environmental performance.

For external users such as investors, Leadbeater and Damos say that attempts are being made to value IAs more accurately, showing how non financial information about IAs such as brands, R&D, can be systematically linked to a company's stock market valuation. They report that the following are some recent attempts identified to be used to value IAs more directly. On human capital, there is an effort in the USA to change the treatment of employees as an "asset, which a company has to lease", (akin to equipment financial lease) and therefore, the leasing commitment would be capitalised on the balance sheet similar to "debt finance asset". On customers' capital, report Leadbeater and Damos, Lev and Amir suggest that customers' acquisition costs could either be reported separately from salaries and general expenses, or they could be capitalised in the same way as long term contracts, insurance contracts, and franchise sales. Lev and Amir also suggested that companies should be given more scope to report non-financial indicators on customer capital such as customers acquisition and retention, life cycle, market share, etc., together with financial costs of customer capital in their financial reports. On brand capitalisation, the authors admit that brands valuation is fraught with difficulties and attempts in the UK to put brands on the balance sheet have been highly controversial. The authors conclude that more needs to be done before brand value estimation could be included on the balance sheet. On R&D, say Leadbeater and Damos, attempts to value them are bedeviled by the uncertain payoff from R & D itself. In the USA, R&D generally is treated as an expense, but in the UK, it is allowed to be capitalised if that R&D can be shown to be viable. The authors say that new measures need to be developed for R&D but no specific methods are suggested. What the

authors suggested was that there is a need to study how markets for R&D and other intangibles assets priced or valued these intangibles and use them as input for changes in accounting procedure. Another way, according to them, is the possibility of using "options price for a R&D" project as options represent rights to use an asset. Leadbeater and Damos found out that Merck, the pharmaceutical group, is already using a highly sophisticated "options" pricing model to value its R&D portfolio. On intellectual properties and patents, the authors concluded that patents may be a better measure of a firm's knowledge capital than spending on R&D as a patent is already a completed R&D. They say that patent portfolio can be assessed from several vantage points, i.e. the number of patents, the frequency with which they are cited within the industry, the frequency with which they are cited in scientific research and the age of the portfolio.

New ways for ICs reporting

Having learned many methods or techniques on how IAs and IC should be and are being measured, what about IAs and IC reporting? As value (whether at cost or at economic value) lies in the eyes of the beholder (users), who are both internal and external users with their own specific needs and concentration, PwC suggested a new way of measuring and reporting of IAs. Rather than a company trying to figure out what is the "right" value of an IA, what would be its future contribution (cash flow potential), and what would be the business' corresponding risk profile, which are all very costly efforts, PwC suggested that the company should provide to its users reliable information on the development of IAs and these users would then use the information to prepare their own economic valuation of the business' future cash flow potential together with the accompanying risk profile.

The merit of PwC approach is that it frees the management from worrying how to substantiate IC value and reduce the costs of quantifying them. However, such reporting approach, which does not quantify IC valuations, might be of little help to many investors who do not really understand the nature of IC and its interwovenness because they would not understand how to use the information provided. Many financial report users would still expect to receive a report which they could use straightaway rather than having to figure out what the report is trying to tell them.

Leadbeater and Damos have come up with three approaches on how IC or IAs shall be reported. The three are incrementalist approach, revolutionary approach, and hybrid approach. In the incrementalist approach, traditional financial accounts would remain the focus of corporate reporting but would be supported by non-financial information that would help investors to value IC. In this approach, non-financial measures which were relevant and with proven robust relationship with market value would be published alongside traditional financial accounts, while those which their relationship with market value are not robust enough would be "quarantined" before allowing them to migrate onto the balance sheet. This approach also requires that companies should provide a set of revisable "rolling accounts" which would be used for restating past ICs which were not capitalised due to uncertainty in realising the future benefits then. The merit of this approach is in its gradualism, especially when IC reporting is a totally new discipline which requires a lot of time before a standard could be established. The demerit is that it still uses the criteria of uncertainty in future returns for allowing IC capitalisation. This would result in a significant portion of IC not being reflected in the financial statements. These are some of the reasons why a more radical approach might be needed, according to Leadbeater and Damos.

In a revolutionary approach, a so called intellectual capital balance sheet is drawn up incorporating traditional financial information but the heart of the balance sheet is on measuring and reporting on IC such as human capital, customer capital, organisational capital, and so on. In this approach, the company values the ICs themselves by using the market value less book value approach. The capital of a company is divided into two where the tangible assets would be valued at book value and the rest of the market value is allocated to various classes of IC. This approach is reported to be used by Skandia in 1996. A so called intellectual capital accounts (ICA) approach as reported by The Danish Trade and Industry Development Council, being used by ten Danish and Swedish companies, which includes Skandia, might be the same as Leadbeater and Damos is trying to show here. The details of the ICA approach will be discussed shortly. The merit of this approach is that all IC would get to be reported. As the focus shifts from financial reporting to IC and IAs reporting, it will require the management to devote more time in managing IC. However, the subjectiveness of the value assigned to each IC might not catch the mood of outside investors.

In the hybrid approach, say Leadbeater and Damos, the job of IC valuation may be increasingly market based with the use of financial instruments such as real options. At the same time IC would also be valued internally. The combination of external and internal valuations of IC is what hybrid approach is all about. According to Leadbeater and Damos, the hybrid approach explicitly recognises that a more reliable value for IC would only be achieved if there were more open and active markets trading IC or financial instruments, which are linked to IC. However, not all IC could be traded and this is the reason why internal valuations are still needed. According to Leadbeater and Damos, there are two main attractions why IC markets need to exist. First, IC values are so volatile and uncertain, heavily influenced by market demand, which need to be constantly adjusted depending on market conditions, technologies, regulatory changes, and so on. Financial market models are much better to cope with these factors when valuing IC compared to accounting model. Second, by having an open market for IC, accountants could straightaway book the value of IC rather than spending a lot of time valuing it internally. The merit of this approach is accounting and market based value would be similar and this would reduce the so called wide gap between market value and book value of a business that is being experienced now. The demerit is that we would have to

wait for such market to exist, which we would not know when. On top of that, most IC would not be traded as it is meant more for a company's competitive edge rather than for trading. This brings to the question of how to value this IC?

Bornemann *et al.* mention Rennie's suggestion for an establishment of a "statement of investments in the future" which buffers the expenses in IC for a period of three to five years until it proves to be either expenses or investments, which would either be charged to profit and loss account or capitalised on the balance sheet. This is a cost approach and is akin to the incrementalist approach as suggested by Leadbeater and Damos. According to Bornemann *et al.*, this reporting approach measures and reports only direct investments in IC in monetary terms but does not measure and report the total IC, which the other portion is emerging IC that is not in monetary terms.

Our final discussion on IC reporting would take a look at another approach used by ten Danish and Swedish companies in their IC reporting as published by The Danish Trade and Industry Development Council. These companies, which were listed earlier, use the so called "intellectual capital accounts (ICA)" as a tool to measure and report on IC. ICA is said to be able to show the underlying fundamentals that determine a company's future growth, and the link between IC with the strategies of the company. The ICA model, according to the report, has two dimensions. The first dimension deals with IC categories which ICA has broken down into four categories, i.e. human resources, customers, technology (IT), and processes. The second dimension is about the type of measurements to measure IC, which include statistical information and internal "key effect" (cause and effect) figures. In measuring the "key effect" figures and results, ICA breaks down the flow of IC into three i.e. "what there is", "what is done", and finally "what happens". "What there is" is a statement of the company's resources. "What is done" is what a company does with its IC in the form of human resources development, customer care, availability of access to technology and support of business process productivity, and how it mobilizes its whole IC (IC interwoven ness). "What happens" reveals whether the IC leads to better products and services based more on third party evaluation such as employees, customers, suppliers, rather than the management input to avoid bias. Compare this ICA approach with PwC reporting framework which has been discussed earlier. It is quite similar. An example of an intellectual capital accounts reporting is taken from Telia's experience in accounting for its human resources. Telia's ICA consist of two parts. One part is human resource income statement and the other part is human resource balance sheet (see [Table I](#) and [Table II](#)).

Findings

The present accounting framework has been acknowledged as in a handicapped position to be of "service" to businesses in the global k-economy environment when it comes to accounting and reporting on intangibles. The present framework needs to go beyond just reporting on physical assets if it wants to achieve its objectives of safeguarding public interests, as IC reporting is of equal importance, if not greater in the k-economy environment. It must show what are the assets components of a business, tangibles and intangibles together. Previously, reporting on physical assets alone was enough, but now it is insufficient.

It has been agreed by the market that the benefits of IC measurements and reporting are enormous. However, the progress on IC measurement and reporting to date can be considered slow due to too many uncertainties. These uncertainties relate to the drawbacks and costs incurred in measuring and reporting IC. They are also due to lack of theoretical and practical knowledge on IC as IC is a new discipline in which its nature is not fully understood, acceptable measurements and reporting standards are absent, practical solutions are lacking, and open markets for IC trading are also absent. It is found that the international accounting bodies are equally as confused as the public is when it comes to understanding IC. The best effort by international accounting bodies to date is trying to squeeze today's IC to fit into the present framework, which have been said in deficient, by establishing qualification criteria which are not in sync with IC nature. This is akin to "doing things the same way and expecting different results". IC is the victim of its very own nature, i.e. being intangible. Accountants do not believe in it and it is treated negatively compared to physical assets. Skepticism to break away from the "industrialised accounting" paradigm is greater than the confidence to embrace the new "knowledge and intangibles accounting paradigm".

Studies have shown that there are four schools of thought for IC valuation. The first school prefers IC be measured at cost. This is the same as current practices of valuing tangible assets, very objective, but would not reflect the true value of IC. The second school prefers to value IC at today's market share valuation less book value for tangible assets. This premium is assumed to be totally IC value. This is a very simplistic approach. The third school prefers IC be valued at economic value (discounted cash flow). This is very subjective and risky as it depends very much on estimation and assumptions about the future. Many studies have shown that 90 percent of the times estimations are wrong. The fourth school prefers IC be valued at "IC market value" and the approach is to "mark to the market". This approach is expected to be able to overcome many valuation uncertainties as well as it is sensitive and dynamic to changes in business environment. But currently there is no open market yet dealing in IC trading. The accounting profession prefers the first school of thought as they are used to it, while entrepreneurs, economists, and investors prefer the economic value base as it is in line with investment philosophy.

Studies have shown that, quite a number of European companies, despite the absence of worldwide IC measurement and reporting standards, have been measuring and reporting on their IC as far back as 1994. However, no American company was found practicing IC measurement and reporting on the same scale as

European companies are. These European companies are reported to be using management excellence performance model such as European foundation for quality management model (EFQM), balanced scorecard (BSC), ethical and social auditing, environmental auditing, TQM, BPR and also economics model such as discounted cash flow, brands valuation, and economic value added (EVA) in measuring their IC. These models are known for their imperfection in IC measurement but the management tolerates these imperfections as these are the available models to date. Research, however, shows that efforts to value IC at economic value have been fraught with difficulties, complicated, subjective and unsuccessful due to lack of understanding of the nature of IC and uncertainties surrounding it.

Complications in IC valuations which are not resolved plus who are the target users for the report, affect the format on how IC shall be reported at what value. For internal users such as the management, IA's performance is the most important. A range of performance indicators and measurement based on the current management excellence performance model which attempt to link financial performance such as cash flow to intangibles such as employee quality and morale, customers base and satisfaction are sufficient. However, lately, there is a strong and growing interest to link IC development and performance beyond financial performance, i.e. to overall business strategies and vision to help management better understand each individual IC role and their importance in that respect. The valuation for internal reporting could be at cost or economic value or share market premium over book value of tangible assets. For external users, due to the diversity in their needs, there are three schools of thoughts on how IC should be reported to them and at what value. The first school prefers, since value lies in the eyes of the beholder which we would not know, the company not valuing IC itself but leaving it to the users themselves to calculate the so called "right value" of a business (tangible and intangibles) which suits their risk/returns profile. This can be done by the company by providing to the users all necessary information and indicators on the business which show the implications of IC on business strategies and future results. The second school prefers reporting IC at costs as the public are used to this basis as per current financial statement practices. The third school prefers that IC be reported using the "mark to the market" approach where IC values on the balance sheet are constantly adjusted to the "IC market price" as they believe only financial market models are able to dynamically value IC in a dynamic and volatile business environment, which accounting model to date has not been successful.

Conclusion

While the current accounting framework has been acknowledged, its difficulties to be of good "service" to today's businesses which operate mainly on intangibles on a global scale, new accounting framework, or for that matter, new valuation framework has yet to be found. Intangibles (IC and IAs) are still a new discipline and too much is not known rather than known about ICs at this moment. Their definitions, classifications, nature, real value, interwovenness, existence, linkage with strategies, association with revenue, the mechanisms in which IC could be traded in an open market, etc. are still being debated. The very nature of IC being intangible creates a host of challenges. While "intangible goods" as pointed out by Eustace could be relatively easy to value, but how to value "intangible competences". Do not talk about valuing them, breaking them up into classes is already a daunting task. The so called experts have not reached any agreement as to the definite standards on how to measure, value and report on IC. It will take the world quite some time before definite standards and efficient open market for trading IC are made available, as are currently enjoyed by tangible assets.

The accounting profession needs to be more sensitive to the critical business requirements relating to IC. Their paradigm needs to be changed as dynamic and as fast as the changes in the business environment. They need to accept that changes are the only constant force in any discipline. Therefore, forcing or requiring every new thing that crops up to fit into the criteria of the "old" accounting framework and if it fails, be rejected, rather than understanding how these new things are changing the whole world and its society and therefore must be harmoniously accounted for, represents a total failure of professionalism. The questions of intangibles are not new to the accounting profession but they have been closing their mind too long to intangibles and happily hiding acquired intangibles under the heading "goodwill". It is very sad to see that the accounting profession is being forced to change by the people outside the profession rather than they as professionals spearheading the change themselves.

In the meantime, despite the above limitations, internal users such as management should be encouraged to a certain extent to start to measure and report on their IC progress as they have access to internal IC development and records. The least a business should do is to install the necessary IC monitoring system and start experimenting the wonders of IC. There are already abundant management performance models such as EFQM, BSC, TQM, which do monitor the progress of IC as well other traditional performance measures. The ten Danish and Swedish companies, the Danish Coloplast Group, and others have successfully demonstrated this, which means that a business could either wait for standards to mature or experiment with them now. In fact, there are no limitations to internal management as to what value to use in IC valuation. They can play around either with cost based approach, share market price less book value approach, or economic value approach as they wish in the process of experimenting. Management could also share their off balance sheet IC status with limited external users such as private investors, lenders, stakeholders, etc., if that is critical to the success of the company without having to wait for the "dust to settle down" (as practical global standards on IC measurement, valuation, and reporting have still a long way to go).

For external reporting, for the time being, a business and the public would have to accept the limited knowledge that the whole world is having on IC. Nevertheless, steps must be taken to address the information vacuum that is currently experienced by the public with regard to a business IC development and achievement. The public would just have to be satisfied in accepting IC being disclosed as information to guide them in their business valuation, or the best they could get is IC being valued at cost like they have been getting on physical assets valuation. If they want more than that, for example, if they wish to have IC being valued at economic value by the business for their consumption, than they have to accept users' liability risks as is experienced in many companies' profit and cash flow forecast, which most of the time do not meet the target. Another aspect that they have to contend with is that IC information and valuation, if provided, might be incomplete. These are part of the costs that the society would have to swallow as the IC discipline evolves into a better and clearer future.

Types/categories	"What there is": statistical information	"What is done": internal key figures	"What happens": effect goals
Human resources	Staff turnover Work related injuries Staff education Sex/equality Costs for recruitment and development	Costs for various types of staff turnover	Result per employee HR balance HR income statement
Customers technology processes	Staff distribution by function Staff distribution by main tasks		

Table I. Telia's intellectual capital key figures: human resource accounts

HR income statement	(kr in mil)	HR balance sheet	(kr in mil)
Revenues	41,060	Assets:	
Wages for operation	8,740	Current assets	13,165
Development/education	581	Recruitment capital	666
Staff turnover	1,752	Education capital	653
Absence due to sickness	316	Fixed capital	44,210
Social activities	328	Total assets	58,693
Total staff costs	11,717	Liabilities:	
Other costs incl. depreciation	24,700	Short term debt	16,079
Results after depreciation	4,643	Long term debt	20,113
Per employee	141	Untaxed reserves	13
		Tied up net capital	17,403
		Recruitment capital	666
		Education capital	653
		Distributable reserves from profit	3,766
		Total liabilities	58,693

Table II. Telia's human resource accounts (1995)

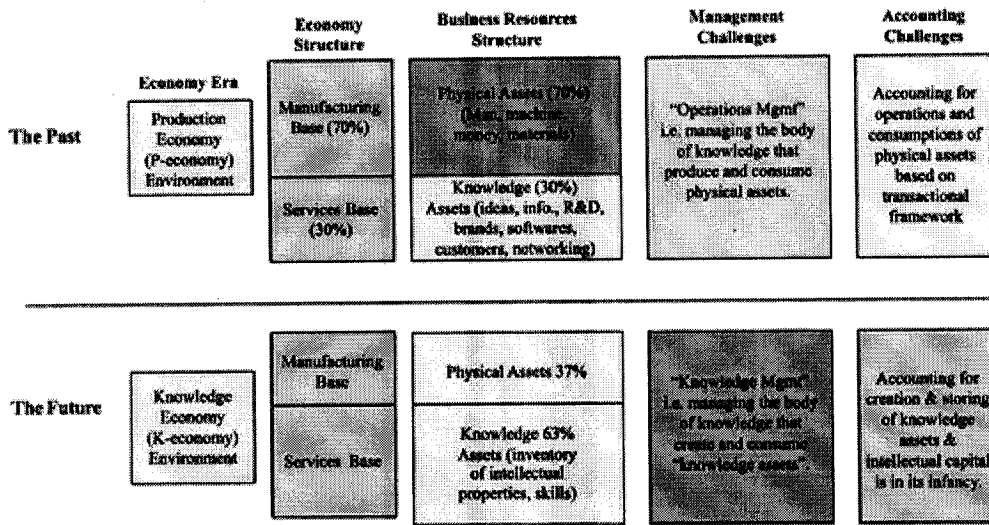


Figure 1. Accounting challenges: the past and the future

$$\begin{aligned}
 KCV &= \frac{(\text{normalised earnings} - \text{earnings from tangible and financial assets})}{\text{knowledge capital discount rate}} \\
 &= \frac{\text{knowledge capital economy (KCE)}}{\text{knowledge capital discount rate (KCDR)}}
 \end{aligned}$$

(see equation 1)

$$\begin{aligned}
 KCV &= \frac{\text{risk adjusted interest in future earnings} - \text{cost of capital}}{\text{price of capital for both financial and knowledge investments}} \\
 &= \text{management value added/price of capital}
 \end{aligned}$$

(see equation 2)

$$\text{OTACE} = \frac{\text{knowledge capital value}}{\text{selling, general and administrative (SGA) plus R\&D residual value}}$$

(see equation 3)

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