The practice of Intellectual Capital in the Fourth Industrial Revolution

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6. Contributions of IC concept and IC community to wealth creation.
   6.1 The IC community main theoretical contributions.
   6.2 Exploring the reasons of the gap between IC theory and practice.
7. The practice of IC Management and Reporting.
8. The future of IC Management and Reporting.
1. Introduction and main purpose of the presentation.
The presentation tries to answer the following fundamental questions

1) What is the impact of the Fourth Industrial Revolution and the advent of the Knowledge Economy on wealth creation for individuals, companies and nations?

2) Does knowledge economy context fundamentally change rules of wealth creation?

3) Who creates wealth and how is wealth created in this new context?

4) Are intangible assets the main drivers of wealth creation?

5) Are the contributions of the IC concept and the IC scientific community relevant for wealth creation?

6) Why such a big gap between IC theory and IC practice?

7) Does IC have a promising future as a discipline?
2. Theory and practice two sides of the same coin.
Practice without theory is more valuable than a theory without practice

~ Marcus Quintilianus ~

“In theory, theory and practice are the same. In practice, they are not.”

Albert Einstein
We all know, based on our common sense and experience, that at least 80% of all management research is useless.

KM/IC is a practice-driven discipline with many practitioners contributing to the body of knowledge.
Reasons explaining the gap:

1. Currently, KM/IC practitioners rarely read papers in academic peer reviewed journals.

2. Overall, practitioners believe that there is current, relevant and useful knowledge in academic outlets; they just cannot find an efficient way to consume it. Some academics have insufficient, if any, industry exposure.

3. A large part of the problem resides in a communication gap between researchers and practitioners.

   (Booker et al., 2008)

4. The proliferation of different frameworks, which some authors claim to number over 100 (Pike and Roos, 2007), causes confusion about what is the right framework to apply in any given situation.
We have concentrated two decades of academic research on establishing 
  . Definitions 
  . Measures
And proliferating IC frameworks (Chatzkel, 2004; Sveiby, 2007)

At the same time, the IC field suffers from a lack of 
proliferation in practice.

Researchers keep calling for new 
frameworks when in reality the 
available ones do not seem to be used.
Intellectual Capital Research (ICR)

1st Stage
- Commonly accepted terminology
- Creating a common understanding of the potential for managing a company’s competitive advantage

2nd Stage
- Measuring, managing and reporting IC
- Empirical evidence to deepen the potential role of IC in the value creation process

3rd Stage
- Development of studies that examine IC in practice

4th Stage
- Extends IC’s boundaries into a wider ecosystem integrating economic, social and environmental concerns

Understanding the concept
IC in practice
Sustainable IC
At the crossroads...

The third stage ICR has the potential to be transformational because, rather than developing IC practices, it gets involved with the praxis of IC (actually implementing IC) inside organizations (Dumay and Garanina, 2013)

The question is not “What is intellectual capital?” but “How is intellectual capital?” (O’Donnell et al., 2006, p. 7)
3. The Fourth Industrial Revolution and the Knowledge Economy context
The fourth industrial revolution: What it means, how to respond

Source: WEF (2016)

We don’t really know what the Fourth Industrial Revolution is, yet, but we have a few ideas.
Navigating the next industrial revolution...

There are three reasons why today’s transformations announce the arrival of a Fourth and distinct industrial revolution: **velocity, scope, and systems impact.**

Industry 4.0

Exponential Technologies

Source: What Industry 4.0 Means for Manufacturers
Anthony Melanson - Jul 10, 2015
The knowledge content of goods and services

Samsung 6 Edge

YOGA
Lenovo Dual

Apple
IPAD 2 Air

NEW BMW
Series 7 2015

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The knowledge content of goods and services
The knowledge content of processes and business models
Network-based business models

Amazon.com
Collaborative platforms

E-Commerce
Industry 4.0: Enablers

Artificial Intelligence

Robotics

3-D printing

Nanotechnology

Internet of Things

Autonomous Vehicles
Challenges

The Fourth Industrial Revolution must be accompanied by a “values revolution” to ensure it works for the common good.

Examples of important areas where IC has a crucial role:

- Economic growth and social inclusion/humanitarian system
- Education, gender and work
- Employment, skills and human capital
- Health and healthcare
- Digital economy and society
- Cities and urbanization/mobility/human mobility and migration
- International governance and public-private cooperation/regional governance/international security
Wealth Definition

- A measure of the value of all of the assets of worth owned by a person, community, company or country.

- Wealth is the found by taking the total market value of all the physical and intangible assets of the entity and then subtracting all liabilities.

- For national wealth as measured in the national accounts the net liabilities are these owed to the rest of the world.

- Wealth is the present value of the expected stream of future utility that an entity could hope to extract from tangible and intangible resources available, assuming these resources are and will be managed in an effective and efficient way.
**Good and bad wealth**

**Good wealth** consists of assets that are created, distributed and used in a manner that respects human dignity and promotes the common good, thus leads to increases in well-being.

**Bad wealth** consists in assets that are accumulated in an unjust manner (using force or fraud), is distributed in a manner that benefits only elites and excludes the poor and marginalized, and is used to create invidious distinctions and not for the common good.

*Source: Dr. Gregory M. A. Gronbacher*
“Growth without technological advance is not good; it represents short-run advantage that will be paid for in long-run retardation”.

David S. Landes

Society theoretically best suited to pursue material progress and general enrichment

1. Knew how to operate, manage and build the instruments of production and to create, adapt, and master new techniques on the technological frontier.
2. Was able to impart this knowledge and know-how to the young, whether by formal education or apprenticeship training.
3. Chose people for jobs by competence and relative merit; promoted and demoted on the basis of performance.
4. Afforded opportunity to individual or collective enterprise; encourage initiative, competition, and emulation.
5. Allowed people to enjoy and employ the fruits of their labor and enterprise.

These standards imply corollaries: gender equality (thereby doubling the pool of talent); no discrimination on the basis of irrelevant criteria (race, sex, religion, etc.); also a preference for scientific (means-end) rationality over magic and superstition (irrationality).

Political and social institutions that favor the achievement of these larger goals

1. Secure rights of private property the better to encourage saving and investment.
2. Secure rights of personal liberty—secure them against both the abuses of tyranny and private disorder (crime and corruption).
3. Enforce rights of contract, explicit and implicit.
4. Provide stable government, not necessarily democratic, but itself governed by publicly known rules (a government of laws rather than men). If democratic, that is, based on periodic elections, the majority wins but does not violate the rights of the losers; while the losers accept their loss and look forward to another turn at the polls.
5. Provide responsive government, one that will hear complaint and make redress.
6. Provide honest government, such that economic actors are not moved to seek advantage and privilege inside or outside the marketplace. In economic jargon, there should be no rents to favor and position.
7. Provide moderate, efficient, ungreedy government. The effect should be to hold taxes down, reduce the government’s claim on the social surplus, and avoid privilege.

Political and social institutions that favor the achievement of these larger goals

This ideal society would also be honest. Such honesty would be enforced by law, but ideally, the law would not be needed. People would believe that honesty is right (also that it pays) and would live and act accordingly.

More corollaries: this society would be marked by geographical and social mobility. People would move about as they sought opportunity, and would rise and fall as they made something or nothing of themselves. This society would value new as against old, youth as against experience, change and risk as against safety. It would not be a society of equal shares, because talents are not equal; but it would tend to a more even distribution of income than is found with privilege and favor. It would have a relatively large middle class. This greater equality would show in more homogeneous dress and easier manners across class lines.

Austrian School of Economics
Main economic institutions in the Austrian School of Economics

**Individual choice**
Individuals and their choices active participants in the economic process. Markets and value of things are determined by these choices.

**Entrepreneurship**
Economic process too much uncertain and could not be predicted by one so “out of the loop”. Entrepreneur is the only one with the proper knowledge to predict outcomes and minimize risk. Entrepreneur, perhaps the most important role in any economy.

**Free and competitive markets**
Belief in a “free and competitive markets” approach to macroeconomics. Strong belief in a minimal role for government in our everyday lives.

**Private property**
Individual property ownership is the bedrock of a healthy economy, Without it, there is no basis for capital, for trade, for value... and free market.

**A price system**
A realistic price system emerges when free markets are allowed to do their work.

Hayek Institute
http://www.austriancenter.com/hi/the-austrian-school/
"Conforming social, economic and financial policy, the task of which is to protect the weak beyond the market" to equalize interest, set rules of the game and limit market power. Röpke strove for an economic order of "economic humanism" that he also referred to as the "Third Way."
Institutions are the rules of the game of a society or more formally are the humanly-devised constraints that structure human interaction. They are composed of: formal rules (statute law, common law, regulations), informal constraints (conventions, norms of behavior and self-imposed codes of conduct) and the enforcement characteristics of both.

Organizations are the players, groups of individuals bound by a common purpose to achieve objectives. They include political bodies (political parties, the senate, a city council, a regulatory agency), economic bodies (firms, trade unions, family farms, cooperatives), social bodies (churches, clubs, athletic associations), and educational bodies (schools, colleges, vocational training centers).

Source: Douglass C. North, Washington University, St. Louis
The World Justice Project Rule of Law Index is an quantitative assessment tool designed to offer a detailed and comprehensive picture of the extent to which countries adhere to the rule of law in practice.

Effective rule of law reduces corruption, combats poverty and disease, and protects people from injustices large and small. It is the foundation for communities of peace, opportunity, and equity — underpinning development, accountable government, and respect for fundamental rights.

Factor 1: Constraints on Government Powers
Factor 2: Absence of Corruption
Factor 3: Open Government
Factor 4: Fundamental Rights
Factor 5: Order and Security
Factor 6: Regulatory Enforcement
Factor 7: Civil Justice
Factor 8: Criminal Justice
Factor 9: Informal Justice
Why Nations Fail

Argues that the key differentiator between countries is “institutions”. Nations thrive when they develop “inclusive” political and economic institutions, and they fail when those institutions become “extractive” and concentrate power and opportunity in the hands of only a few.

Wealth creation in the Knowledge Economy: Theoretical Foundations

Micro Level (Enterprises)
- RESOURCE BASED VIEW
- OPEN INNOVATION
- KNOWLEDGE BASED VIEW
- ACTIVITY BASED VIEW
- DYNAMIC CAPABILITIES BASED VIEW
- CUSTOMER-CENTRIC VIEW

Macro Level (Cities, Regions, Nations)
- AUSTRIAN SCHOOL OF ECONOMICS
- NEW INSTITUTIONAL AND EVOLUTIONARY ECONOMICS (I&E)
- CULTURAL AND SOCIAL ECONOMICS (C&S)
- KNOWLEDGE BASED DEVELOPMENT (KBD)

INCAS, ICBS (OICBS, IICBS), SCBS.

CADIC, CICBS, RICBS, NICBS
Wealth Creation in the Knowledge Economy

Macro dimension

- Free Market economy
- Knowledge based economy
- Liberal democratic political systems
- Inclusive political, economic and social institutions
- Entrepreneurial and Business Excellence
- High quality people

Micro dimension

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Wealth Creation in the Knowledge Economy

**Macro dimension**

- **Free Market economy**
- **Knowledge based economy**
- **Liberal democratic political systems**
- **Inclusive political, and economic institutions**

**Micro dimension**

- **Entrepreneurial and Business Excellence**
- **High quality people**

Indices and Rankings:

- Heritage Foundation Index of economic freedom.
- KEI, K4D, ISB, Global Innovation index (GII)
- Freedom House Global democracy ranking, Democracy index
- WEF Institutions GCI
- World Justice Project Rule of Law Index
- WEF The human capital report

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Theoretical principles

Who?

1. The main source of wealth of a nation is people. Knowledge and other types of intangibles are in the head of individual people. Without an educated, healthy and hardworking population there is no progress.

2. A free market economy with inclusive political and economic institutions is the sine qua non condition for sustainable economic and social development. Inclusive institutions facilitate the creation of virtuous circles of innovation, economic expansion and more widely-held wealth.

3. Wealth or poverty of a specific nation is strongly dependant on the number of competitive or excellent companies that the specific nation has. Excellent companies are usually created by entrepreneurs, the most important figure in any economy.

4. Government does not create wealth directly but contributes to wealth creation when succeeds putting into practice a free market economy and inclusive democratic political, economical and social institutions (liberty, order and the rule of law).

5. An excellent or competitive company is the one that achieves long term extraordinary profits due to the fact that has a business model with sustainable competitive advantages.

6. In the knowledge economy sustainable competitive advantages are mainly based on intangibles. Consequently strategic management of intangibles or intellectual capital becomes a fundamental task.
Theoretical principles

How?

7. Business excellence is always due to good strategy formulation and superior strategy implementation.

8. Good strategy formulation and superior strategy implementation is always a human task and strongly depends on the quality of entrepreneurs, top management teams, key professional people and knowledge workers.

9. In a continuous changing environment business models quickly get out-of-date and as a consequence of that, innovation in business models\(^1\) becomes an urgent need.

10. In any company the essential activity to perform is always innovation in the business model so it can be converted in an excellent or competitive business model.

11. Companies alone do not create wealth. They need the collaboration of other companies, universities and research institutes, financial institutions, government and other organisations and institutions and specially the existing ones in the cluster, region or nation where the company is located. In other words they need to be active part of a territorial open innovation system.

12. Strategic management of intangibles or intellectual capital needs also to be applied to the government of clusters, regions in nations in order to build territorial open innovations systems.

\(^{1}\) We consider, in this particular context, that innovation in business models, encompass all types of innovations, including products, services, processes, technical, management, etc.
Wealth Creation in the KE

People

Knowledge

Intangibles

Competitive Enterprises

Innovative Enterprises

Suitable Environment
5. Intangibles as fundamental factors of wealth creation.
Intangible Assets Definition

- “Not tangible; incapable of being touched or perceived by touch; impalpable; imperceptible.” (Webter’s dictionary definition)

- “Intangible assets are sources of future benefits which do not have a physical embodiment”. (Baruch Lev.)

- Intangible liabilities are sources of future losses which do not have a physical embodiment.
Intellectual Capital Definitions

IC = Intangible Assets = Knowledge Assets

IC = Knowledge that produces value

IC = Knowledge + other intangibles that produce value or are able to produce value in the future

IC = core competencies or core capabilities

IC = Human capital + Structural capital + Relational capital
Disciplinary Views

- An Economics Perspective, Mie Augier and David Teece.
- A Strategy Perspective, Bernard Marr and Göran Roos
- An Accounting Perspective, Baruch Lev, Leandro Cañibano, and Bernard Marr.
- A Finance Perspective, Sudi Sudarsanam, Ghulam Sorwar, and Bernard Marr.
- A Reporting Perspective, Jan Mourtisen, Per Nikolaj Bukh, and Bernard Marr.
- A Marketing Perspective, Lisa Fernström.
- An Information Systems Perspective, Joe Peppard
- A Legal Perspective, L. Martin Clotier and E. Richard Gold.
5.1 The micro perspective.
INTANGIBLE ASSET MARKET VALUE

Within the last quarter century, the market value of the S&P 500 companies has deviated greatly from their book value. This "value gap" indicates that physical and financial accountable assets reflected on a company's balance sheet comprises less than 20% of the true value of the average firm. Our further research shows that a significant portion of this intangible value is represented by patented technology.

COMPONENTS OF S&P 500 MARKET VALUE

![Graph showing the components of S&P 500 market value over time.](Image)

- **1975**: 17% Tangible Assets, 83% Intangible Assets
- **1985**: 32% Tangible Assets, 68% Intangible Assets
- **1995**: 32% Tangible Assets, 68% Intangible Assets
- **2005**: 20% Tangible Assets, 80% Intangible Assets
- **2010**: 20% Tangible Assets, 80% Intangible Assets

*Source: Ocean Tomo*
Interrelationship among Data, Information, Knowledge and I.C.

Data & Ideas

Information

Knowledge explicit and tacit

Intellectual Capital

Data
Organized data

Knowledge that produces value

Is a set of beliefs about casual relationships in the world and an organisation

Ron Sanchez

Justified personal belief towards the truth.

Ikujiro Nonaka

Knowledge and other intangibles that produce value
Intellectual Capital Content

- **Human Capital**: knowledge, skills, experiences and abilities of the employees
- **Structural Capital**: R&D activities, organizational routines, procedures, systems, databases and intellectual property rights of the company
- **Relational Capital**: All resources linked to the external relationships of the firm with customers, suppliers, R&D partners, etc.

*Source: Prof Constantin Bratianu*
5.2 The macro perspective.
Where Is the Wealth of Nations?

Composition of wealth by income group

<table>
<thead>
<tr>
<th>Per cent</th>
<th>Low Income</th>
<th>Middle Income</th>
<th>High Income OECD</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Produced capital</td>
<td>Natural capital</td>
<td>Intangible capital</td>
</tr>
<tr>
<td>100%</td>
<td>16%</td>
<td>19%</td>
<td>17%</td>
</tr>
<tr>
<td>90%</td>
<td>26%</td>
<td>13%</td>
<td>2%</td>
</tr>
<tr>
<td>80%</td>
<td>59%</td>
<td>68%</td>
<td>80%</td>
</tr>
</tbody>
</table>

Note: oil countries excluded

Physical and Financial Capital

Human Capital

Market Capital

Renewal Capital

Process Capital

Intellectual Capital

Fuente: Kiernan Matthew, 1995
6. Contributions of IC concept and IC community to wealth creation.
Entrepreneurial Excellence in the Knowledge Economy

Intellectual Capital Benchmarking Systems

By José Maria Viedma Martí and Maria do Rosário Cabrita

www.palgrave.com
6.1 The IC community main theoretical contributions.
IC micro theory
In search of an Intellectual Capital Comprehensive Theory. An updated approach.

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Strategy and Business Excellence

“The key common ingredient in all success stories is the presence of a soundly formulated and effectively implemented strategy”.

(Grant 1998)
Strategic Thought Development

1) Market based paradigm (external).
   - Competitives forces (Porter, 1980)
   - Strategic groups (Caves y Porter, 1977)
   - Strategic conflict (Carl Shapiro, 1989)

2) Resources and capabilities paradigm (internal).
   - The activity based view. (Porter, 1985).
   - Dynamic capabilities. (Teece, Pisano and Shuen, 1997)
   - The Knowledge based view. (Grant 1998)
   - Organizational knowledge creation (Nonaka, Umemoto & Senno 1996)

3) Customer driven innovation paradigm (external)
   - Customer driven innovation (Von Hippel, 1986 & 2005)
   - Open Innovation (Chesbrough 2003)
Strategic Thought Development.

Success or excellence

Soundly formulated and effectively implemented strategies

Intangible resources and capabilities

Core Competencies

Intellectual Capital

Sustainable Competitive advantages
Financial results

TANGIBLE

INTANGIBLE

PRESENT
(Value Extraction)

FUTURE
(Innovation)

Expected financial results

New process B

New process A

New process C

New process D

Key success factors

Human Capital Indicators

Relational Capital Indicators

Structural Capital Indicators

New key success factors

New indicators

New human capital

New indicators

New relational capital

New indicators

New structural capital

New indicators

New relational capital

New indicators

New structural capital

New indicators

Prevailing paradigm
Intangible Assets Monitor

**Equity**
(book value)
Tangible assets minus visible debt.

**Intangible Assets**
(stock price premium)

- **External structure**
  (brands, customer and supplier relations)

- **Internal structure**
  (the organization: management, legal structure, manual systems, attitudes, R&D, Software)

- **Individual competence**
  (education, experience)

The Balanced Scorecard

<table>
<thead>
<tr>
<th>Vision and strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial</strong></td>
</tr>
<tr>
<td>To succeed financially, how should we appear to our shareholders?</td>
</tr>
<tr>
<td><strong>Customer</strong></td>
</tr>
<tr>
<td>To achieve our Vision, how should we appear to our customers?</td>
</tr>
<tr>
<td><strong>Internal Business Process</strong></td>
</tr>
<tr>
<td>To satisfy our shareholders and customers, what business processes must we excel at?</td>
</tr>
<tr>
<td><strong>Learning and Growth</strong></td>
</tr>
<tr>
<td>To achieve our vision, how will we sustain our ability to change and improve?</td>
</tr>
</tbody>
</table>

Skandia Navigator

Financial focus

Customer Focus

Process Focus

Human Focus

Renewal & Development Focus

Operating Environment

Prevailing paradigm

The process model (we have used the skandia model as an example of IC categories)

Company Value Creation Tree

TANGIBLE RESOURCES

Product A’
Product A
Product A”

Service A’
Service B
Service C
Service C’
Service C”

Process A
Process B
Process C

PRESENT
(Value Extraction)

INTANGIBLE RESOURCES

CORE COMPETENCIES

CORE KNOWLEDGE

PROFESSIONALS’ CORE KNOWLEDGE

New paradigm

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New paradigm

The Value Explorer

Assets and endowments
- Installed base of customers
  - Brand and image
- Network of suppliers
- Network of talent
  - Ownership of standards

Skills & Tacit Knowledge
- Know-how
- Talent
- Competencies

Processes
- Leadership & control
- Communication
- Management information

Technology and explicit knowledge
- Patents
- Manuals
- Procedures

Unique bundle of intangible assets (=core competence)

Collective values and norms
- e.g. client focus, reliability, quality

Source: Andriessen D., Tissen R. 2000. The Value Explorer
SWOT Analysis

The Firm
1. Goals and Values
2. Resources and Capabilities
3. Structure and Systems

The Industry Environment
- Competitors
- Customers
- Suppliers

Extended SWOT Analysis

The Firm

1. Goals and Values
2. Resources and capabilities
   • Core activities
   • Core competencies
   • Core knowledge
3. Structure and systems
   • Strategic
   Benchmarking and competitive intelligence structure and systems

The world class industry segment competitors

1. Goals and Values
2. Resources and capabilities
   • Core activities
   • Core competencies
   • Core knowledge
3. Structure and systems
   • Strategic
   Benchmarking
Business Process Value Chain.

Customer need identified

INNOVATION
- Design
- Develop

OPERATIONS
- Make
- Market
- Service

Customer need satisfied

Core activities
Core competencies
Innovation intellectual capital

Core activities
Core competencies
Operations intellectual capital

IICBS
Innovation Intellectual Capital Benchmarking System

OICBS
Operations Intellectual Capital Benchmarking System

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Innovation Intellectual Capital Benchmarking System

- Company A
  - Project 1 Objectives
  - New Products and Services
  - New Processes
  - New core capabilities
  - New professional Core capabilities
  - Innovation Infrastructure
  - Benchmarking GAP

- Customer emerging needs

- Company B
  - Project (h) Objectives
  - New Products and Services (h)
  - New Processes (h)
  - New core Capabilities (h)
  - New professional Core capabilities (h)
  - Innovation Infrastructure
  - Benchmarking GAP

(h) = Homologous

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### INNOVATION INTELLECTUAL CAPITAL BALANCE SHEET

**Project:** Fast new fashion products production

<table>
<thead>
<tr>
<th>Competitor</th>
<th>Zara</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th><strong>ASSETS</strong></th>
<th><strong>LIABILITIES</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>1.- NEW PRODUCTS</td>
<td>1.- NEW PRODUCTS</td>
</tr>
<tr>
<td>1.1 Design</td>
<td>1.1 Design</td>
</tr>
<tr>
<td>1.2 Price/Quality relationship</td>
<td>1.2 Price/Quality relationship</td>
</tr>
<tr>
<td>1.3 Embodied services</td>
<td>1.3 Embodied services</td>
</tr>
<tr>
<td>1.4 New trends adaptation</td>
<td>1.4 New trends adaptation</td>
</tr>
<tr>
<td>1.5 Fabric quality</td>
<td>1.5 Fabric quality</td>
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<tr>
<td>1.6 Fashion</td>
<td>1.6 Fashion</td>
</tr>
<tr>
<td>1.7 Conformance</td>
<td>1.7 Conformance</td>
</tr>
<tr>
<td>1.8 Garment selection</td>
<td>1.8 Garment selection</td>
</tr>
<tr>
<td>2.- NEW PROCESSES</td>
<td>2.- NEW PROCESSES</td>
</tr>
<tr>
<td>2.1 Customer needs identification</td>
<td>2.1 Customer needs identification</td>
</tr>
<tr>
<td>2.2 Discovering emerging needs</td>
<td>2.2 Discovering emerging needs</td>
</tr>
<tr>
<td>2.3 Selecting market segment</td>
<td>2.3 Selecting market segment</td>
</tr>
<tr>
<td>2.4 Creativity</td>
<td>2.4 Creativity</td>
</tr>
<tr>
<td>2.5 Design CAD</td>
<td>2.5 Design CAD</td>
</tr>
<tr>
<td>2.6 Manufacturing CAM</td>
<td>2.6 Manufacturing CAM</td>
</tr>
<tr>
<td>2.7 Supply chain architecture</td>
<td>2.7 Supply chain architecture</td>
</tr>
<tr>
<td>2.8 Process architecture</td>
<td>2.8 Process architecture</td>
</tr>
<tr>
<td>2.9 Logistics</td>
<td>2.9 Logistics</td>
</tr>
<tr>
<td>3.- NEW CORE CAPABILITIES</td>
<td>3.- NEW CORE CAPABILITIES</td>
</tr>
<tr>
<td>3.1 Fashion creation</td>
<td>3.1 Fashion creation</td>
</tr>
<tr>
<td>3.2 Supply chain architecture</td>
<td>3.2 Supply chain architecture</td>
</tr>
<tr>
<td>3.3 Design for manufacturability DFM</td>
<td>3.3 Design for manufacturability DFM</td>
</tr>
<tr>
<td>3.4 Supply chain design</td>
<td>3.4 Supply chain design</td>
</tr>
<tr>
<td>3.5 Three-D.concurrent engineering</td>
<td>3.5 Three-D.concurrent engineering</td>
</tr>
<tr>
<td>3.6 Quick development and production</td>
<td>3.6 Quick development and production</td>
</tr>
<tr>
<td>5.- INNOVATION INFRASTRUCTURE</td>
<td>5.- INNOVATION INFRASTRUCTURE</td>
</tr>
<tr>
<td>5.1 Innovation and strategy</td>
<td>5.1 Innovation and strategy</td>
</tr>
<tr>
<td>5.2 R+D integration</td>
<td>5.2 R+D integration</td>
</tr>
<tr>
<td>5.3 Technology standard</td>
<td>5.3 Technology standard</td>
</tr>
<tr>
<td>5.4 R+D organisation</td>
<td>5.4 R+D organisation</td>
</tr>
<tr>
<td>5.5 Innovation resource allocation</td>
<td>5.5 Innovation resource allocation</td>
</tr>
<tr>
<td>5.6 Technology information systems</td>
<td>5.6 Technology information systems</td>
</tr>
<tr>
<td>5.7 Technology management systems</td>
<td>5.7 Technology management systems</td>
</tr>
</tbody>
</table>

**Consolidated Reliability Index:** 37%
IC macro theory
Two sets of frameworks

<table>
<thead>
<tr>
<th>Competitiveness frameworks:</th>
</tr>
</thead>
<tbody>
<tr>
<td>W.E.F. Global Competitiveness Index</td>
</tr>
<tr>
<td>I.M.D. World Competitiveness Year Book</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>IC Community frameworks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mainly based on Skandia Navigator (Leif Edvinsson, Carol Yeh-Yun Lin)</td>
</tr>
<tr>
<td>Some concentrate on knowledge-creation and innovation. (Ahmed Bounfour, F.Javier Carrillo, Aino Kianto and Pirjo Stahle)</td>
</tr>
<tr>
<td>NICBS that tries to integrate the two sets of frameworks and considers the micro and macroeconomic dimension.</td>
</tr>
</tbody>
</table>
The 12 factors of competitiveness of W.E.F.

Basic requirements
- Institutions
- Infrastructure
- Macroeconomic environment
- Health and primary education

Efficiency enhancers
- Higher education and training
- Goods market efficiency
- Labor market efficiency
- Financial market development
- Technological readiness
- Market size

Innovation and sophistication factors
- Business sophistication
- Innovation

Key for factor-driven economies
Key for efficiency-driven economies
Key for innovation-driven economies
IC community frameworks.
IC community contributions.
<table>
<thead>
<tr>
<th>Human capital index</th>
<th>Market capital index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skilled labor#</td>
<td>Corporate tax#</td>
</tr>
<tr>
<td>Employee training#</td>
<td>Cross-border venture#</td>
</tr>
<tr>
<td>Literacy rate</td>
<td>Openness of culture#</td>
</tr>
<tr>
<td>Higher education enrollment</td>
<td>Globalization#</td>
</tr>
<tr>
<td>Pupil–teacher ratio</td>
<td>Transparency#</td>
</tr>
<tr>
<td>Internet subscribers</td>
<td>Image of country#</td>
</tr>
<tr>
<td>Public expenditure on education</td>
<td>Exports of goods</td>
</tr>
<tr>
<td>Process capital index</td>
<td>Renewal capital index</td>
</tr>
<tr>
<td>Business competition environment#</td>
<td>Business R&amp;D spending</td>
</tr>
<tr>
<td>Government efficiency#</td>
<td>Basic research#</td>
</tr>
<tr>
<td>Intellectual property rights protection#</td>
<td>R&amp;D spending/GDP</td>
</tr>
<tr>
<td>Capital availability#</td>
<td>R&amp;D researchers</td>
</tr>
<tr>
<td>Computers in use per capita</td>
<td>Cooperation between universities and enterprises#</td>
</tr>
<tr>
<td>Convenience of establishing new firms#</td>
<td>Scientific articles</td>
</tr>
<tr>
<td>Mobile phone subscribers</td>
<td>Patents per capita (USPTO+EPO)</td>
</tr>
</tbody>
</table>

Remarks: (1) Financial capital is the logarithm of GDP per capita adjusted by purchasing power parity. (2) Variables marked with # are rated qualitatively using a scale of 1–10.

NICBS framework
NICBS: Main Structure & Key Elements

NATION'S LONG-TERM ECONOMIC GROWTH POTENTIAL

Wealth creation 80%

Sustainability 20%

NCICP

MCICF

Construction 12%
Industry 17%
Services 68%
Primary sector 3%

VISION

Cluster N's competitive environment
Dynamic & systemic assessment against first-class competitors

NATION'S HUMAN CAPITAL BASE (Knowledge infrast.)

Economic Institutions
Social Institutions
Political Institutions

MACROECONOMIC STABILITY

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6.2 Exploring the reasons of the gap between IC theory and practice.
IC Gap between theory and practice

1. IC was born due to a group of practitioners such as Leif Edvinsson, Karl-Erik Sveiby and others, that tried to justify the firms' gap between market value and book value.

2. IC is the typical case of practice without theory.

3. The theory of IC was mainly borrowed, since the beginning of the IC community, from strategic management theory.

4. IC always identified with the three constructs: Human Capital, Structural Capital and Relational Capital.

5. These three constructs are too abstracts and far away from the usual management constructs that companies use in everyday life.

6. Instead of the abstract constructs companies prefer to use the aggregated concept of competencies and capabilities, that are easy to link with products, services, activities and processes.

7. The concept of IC linked with the three boxes could only be used for strategy implementation, but is practically useless for strategy formulation.

8. Similar considerations apply to IC management and reporting at the macro level (regions and nations). The problem is the use of abstract constructs (Human Capital, Process Capital, Renewal Capital and Market Capital) too. They are not familiar with the concepts used by economist, politicians and managers in the public sector.
7. The practice of IC Management and Reporting.
The practice of IC management and reporting

1. The practice of IC management and reporting is disappointing.
2. Very few consulting firms specialized in IC Management and Reporting:
   - ICMG that owns the IC Rating methodology. It is based in Japan and has many world-wide subsidiaries.
   - ICS Intellectual Capital Services Ltd based in London.
3. Balanced Scorecard the only IC model with worldwide applications for big companies and strategy deployment and strategy implementation purposes.
4. The InCaS IC model specially designed for IC management and reporting of SMEs.
5. ICBS as the only IC model that specifically focuses on strategy formulation.
6. The failure of IC disclosure according to Baruch Lev.
7. Intellectual Capital Reporting: rest in peace? (John Dumay)
8. Some practical applications of IC strategic management in European Universities (Austria).
9. Very few practical approaches of IC at the macro level.
Business Formula – Business Recipe

Soundly formulated and effectively implemented strategies
La Sagrada Familia
(A. Gaudi)
Venus y Serena Williams
Benetton's Store
ZARA's Store
Edgars Awarded

The best mystery fiction and nonfiction titles of the year have been chosen! Check out this list of Edgar Award winners. Have you read them all? If not, pick a few and get reading! It would be a crime to miss even one.

▶ See previous Edgar Award winners

Now in Books

Out of Time
Finding true love is hard enough without throwing chrono-displacement disorder into the mix. Take an unforgettable trip through time with Henry and Clare in Audrey Niffenegger's spellbinding debut novel, The Time Traveler's Wife, now in paperback.
The practice of intellectual capital management

BUSSINES EXCELLENCE

(Bussines Formula)

Good strategy formulation

Very good strategy implementation

Fundamentally Based on

Core Competencies
Core Capabilities
Intellectual Capital

Models and tools more frequently used

Formulation
Not breaking down intellectual capital into its constituent parts

SWOT
ICBS

Implementation
Breaking down intellectual capital into its constituent parts

Balanced Scorecard
InCas
Majority of Research on IC Disclosure

- An old, 20–25 years research effort
- There have been lots of IC disclosure initiatives (NYU, Denmark) but most of them failed.
- IC reports mainly limited to some European companies; no standardization; very limited impact.
- By and large, leading corporations resist any meaningful intangibles disclosure. No incentives for managers, no real demand by investors.
- Sustainable, environmental, social, integrated reporting, all pushed by various organizations, but so far did not change the map (except in South Africa).

Sorry for the grim report
Why the Failure?

- Fortune magazine’s conference of the “100 smartest people.”

  “Intangibles are inert, like bricks.”
  Inert: to be in a state of doing little or nothing.

- The only interest in intangibles per se, is when you try to sell them (patents, brands, software). Otherwise, what’s interesting to managers and investors is: how do the intangibles, with other resources, create value?

- This points at a different research agenda. This research agenda will be of great interest to managers, investors, and policymakers.

  How do I know? From hundreds of conference calls.

Baruch Lev
Figure 1.
Intellectual capital reporting: rest in peace?
Reporting landscape for listed companies in 2013

Figure 3. Listed company reporting 2013
The practice of IC management at the macro level

Strategic Management of intangibles at the macro level

Economic and Political Model

Good strategy formulation

Very good strategy implementation

Fundamentally Based on

Core Competencies
Core Capabilities
Intellectual Capital

Methodologies and frameworks

Formulation

SWOT
NICBS

Implementation

Competitiveness frameworks IMD, WEF
IC Community frameworks

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8. The future of IC Management and Reporting.
The future of IC Management and Reporting.

1. The future is not only in our hands. The answer is blowing in the wind.
2. The strategy perspective of IC the most relevant.
3. Tangible and intangible assets they always go together.
4. Intangible assets coexist with intangible liabilities.
5. The dynamics of intangible assets. Virtuous circles and vicious circles.
6. Thinking out of the three boxes.
7. Core competencies and core capabilities as the main intangible assets to manage.
8. Integrated not separated.
9. Focusing IC more on value creation and less on value extraction.
10. Integrated Reporting and ICBS as complementary frameworks.
11. IC Management and Reporting as a mix of science, art and practice.
12. Urgent need of mutual collaboration between IC management and the other management disciplines.
A New Research Agenda Useful to Managers, Investors, and Policymakers

- Focus on **Strategic Resources**, the drivers of **long-term competitive advantage** (see Resource-Based Theory)
- Strategic resources, mostly intangible (patents, brands) and some tangible (oil & gas resources, Amazon’s warehouses) are assets which:
  - Create economic value
  - Rare
  - Difficult for competitors to imitate.
- The research emphasis is on what interest managers, investors, and policymakers:
  - How best to create strategic resources
  - How to preserve and protect these resources
  - How to generate the most value from these resources.

Baruch Lev
[Figure 1.1] WICI’s Framework Focus within the corporate reporting landscape

Corporate Reporting

WICI’s Focus
- Human Capital
- Intellectual/Organizational Capital

Sustainability Reporting
- Social and Relationship Capital
- Natural Capital

Financial Reporting
- Financial Capital
- Manufactured Capital
Conclusions.

The classical IC paradigm is dead. John Dumay buried IC in a JIC paper.

A renewed IC paradigm is resurrecting and ascending into heaven, where will be seated at the right hand of the Father (Strategic Management) as the main advisor on Managing Intangibles for Wealth Creation.
Many thanks for your attention!!