

Rationales and trends for IC Reporting for universities in the context of higher education and science policy

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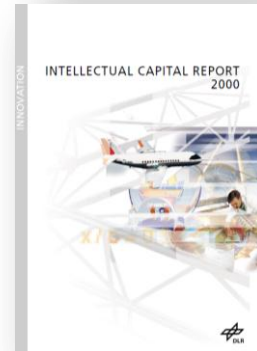
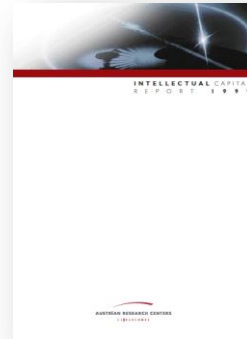
MLW, Bucharest, 24-26 October

Content

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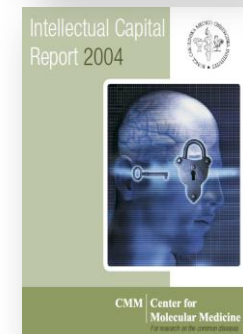
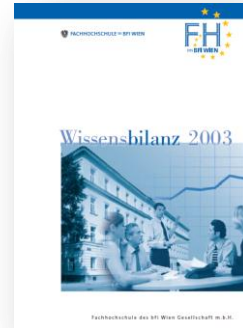
History of IC reporting for universities (Austria)

- 1999: publication of the first IC Report for an entire Research Organisation in Europe by ARC Seibersdorf (developed by ARC Systems research and University of Graz)
- 2000-2002: publication of IC Reports by further research organisations in Austria and Germany: Joanneum research, DLR (German Aerospace Center)
- 1999-2001: Aims to standardise IC Reporting for Forschung Austria organisation, preparation of a study, but failed
- 2001: Study for the Development of IC reporting for Austrian universities in the course of the new Austrian university law (conducted by ARC systems research and the University Leoben)
- 2002: Publication of the UG 2002 encompassing a request of universities to publish IC reports
- 2002: Publication of an IC report by an institute at the University of Innsbruck
- 2002: Publication of an IC report by the Danube University Krems

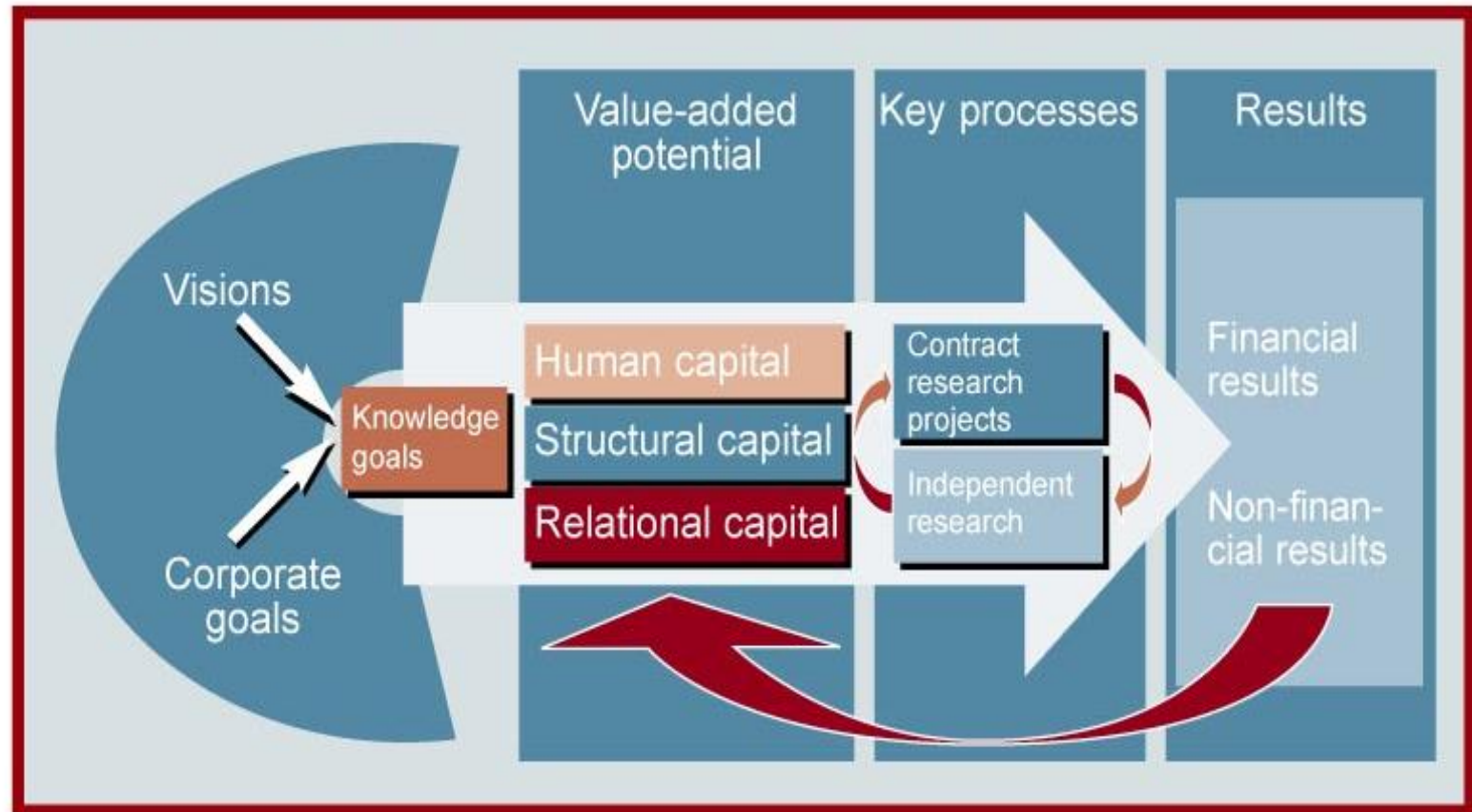


History of IC reporting for universities

- 2003: IC report from the University of Applied Science (Fachhochschule des bfi)
- 2004: Publication of the *Wissensbilanz-Verordnung* (Degree for IC Reporting)
- 2004: Publication of the first IC Reports by the University of Agriculture (BOKU)
- 2002-2010: publication of IC report by further research organisations in Europe, e.g. CMM, Fraunhofer Institutes, ETRI (Korea), Madrid Research Centers (E. Bueno)
- 2004: first publication of an IC report by the Corvinus University (Hungary)
- 2000-2006: Establishment of the Working Group on Managing, Valuing & Reporting Intellectual Capital (VIAMK) for HEROs
- 2004: Organisation of a workshop for IC reporting for HEROs at the annual EARMA conference in Bucharest (Curaj, Leitner, Warden), Track about HEROs at the OECD Conference in Ferrara



The ARC IC Model



© Austrian Research Centers Seibersdorf, 2000

Intellectual Capital Reports: Functions and Use

- Communication instrument
 - Communication about the future development and efficient use of intangible resources
 - Information of funding agencies, customers, society, etc.,
- Management instrument
 - Provision of informationen for investment decisions related to human resource development, research programs, etc.
 - Strategic discussion, development and implementation
 - Communication of strategic goals and values to the employees

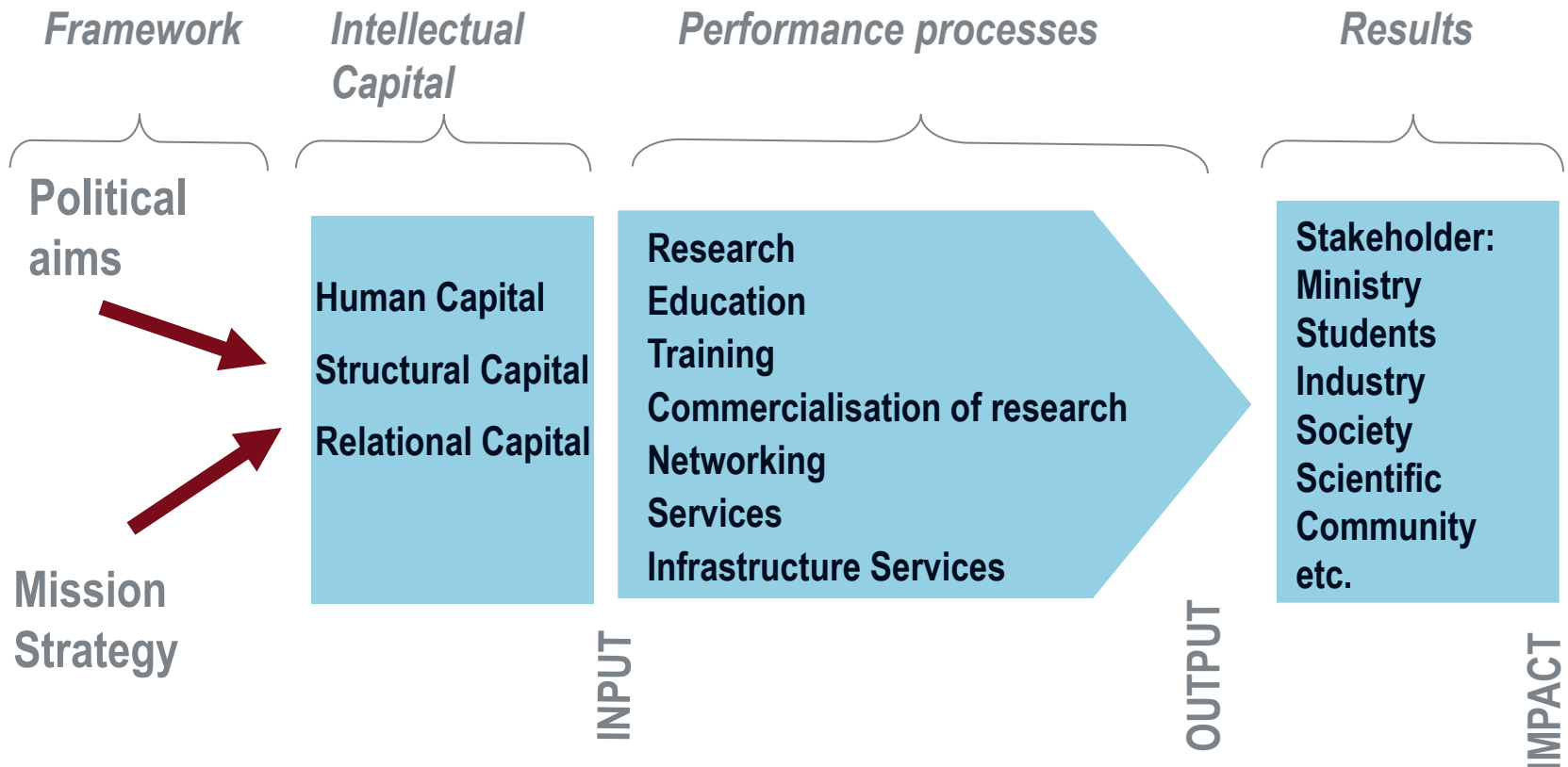
Key pillars of the Austrian University reform (University Act 2002/UG 20002): New Public Management

1. Increased autonomy of universities
2. Funding by global budgets, based on performance contracts and a formula-based budget
3. Regular evaluation
4. Output and goal orientation
5. Increased transparency and communication

IC Report for universities in Austria: Objectives

1. Communication and management instrument for the Ministry (Science and Education Policy): information about the universities' intellectual capital, goals, strategy, processes, performance
2. Communication and management instrument for each individual university: information for investment decisions with respect to intangible investments: R&D programs, HR Development, etc.; support for the formulation of organisational aims and strategies, - broader than the reporting related to the performance contract

IC Reporting for Austrian Universities: The Model

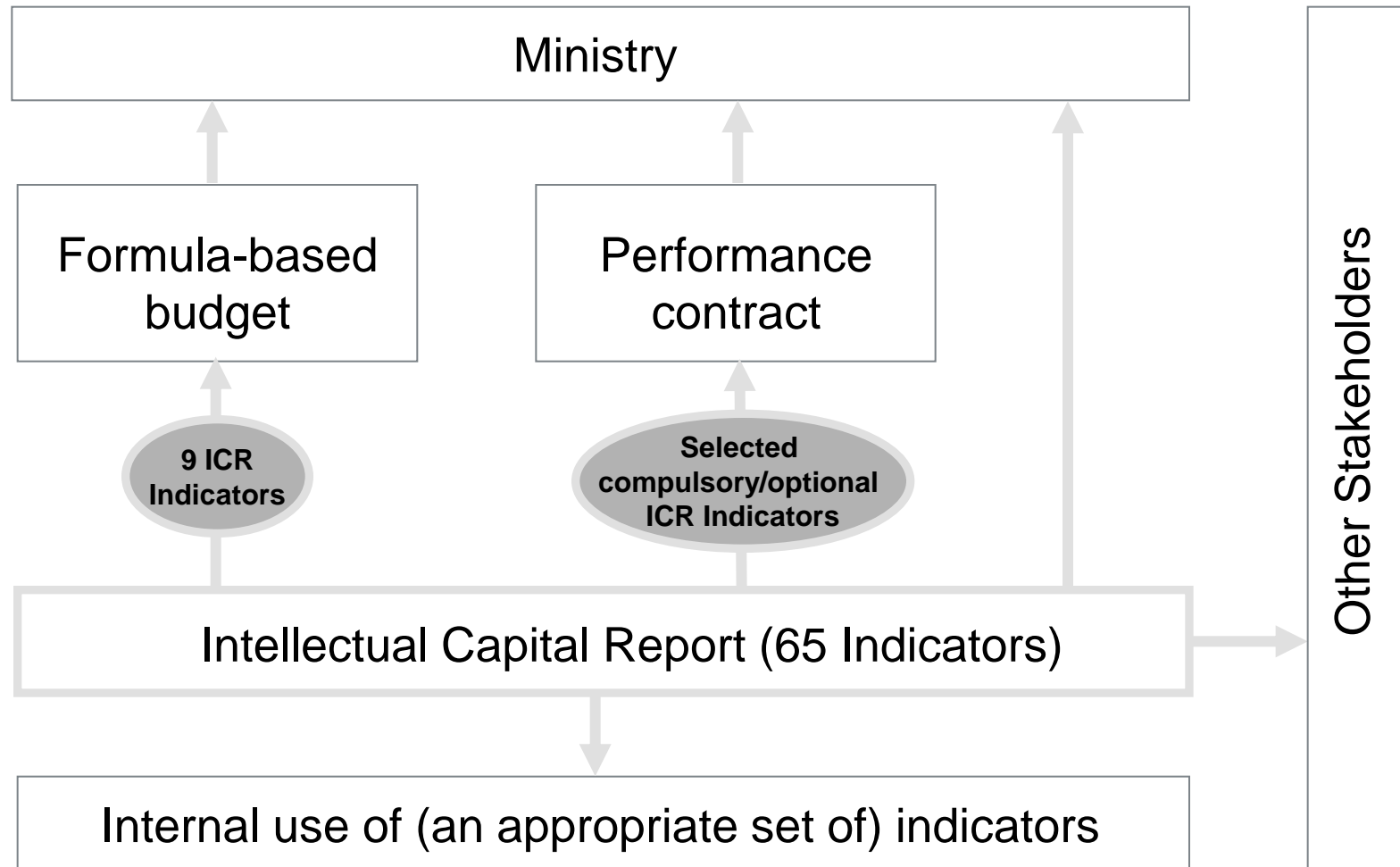


IC indicators to be published

Intellectual Capital	Core processes	Output and Impact
<p>Human Capital</p> <ol style="list-style-type: none"> 1 Number of staff (gender*, qualification, etc.) 2 Number of awarded Habilitations (venia docendi) 3 Number of new appointments (ingoing) 4 Number of appointments away from the university (outgoing) 5 Number of scientific staff who stayed abroad for at least 5 days 6 Number of scientists employed abroad who completed a stay at the university (incoming staff) 7 Number of staff who attended continuing training courses <p>Structural Capital</p> <ol style="list-style-type: none"> 1 Expenditures for gender mainstreaming activities (in €) 2 Expenditures for activities related to implementing gender mainstreaming in research and education (in €) 3 Number of staff employed for specific tasks (e.g. gender mainstreaming, e-learning, external co-operations) 4 Number of units which aim to support disabled persons 5 Expenditures for specific measures to support disabled students or students with chronic diseases (in €) 6 Expenditures for measures to foster the compatibility of studying and family (in €) 7 Expenditures for online-research databases (in €) 8 Expenditures for scientific journals (in €) 9 Expenditures for large equipment for R&D (in €) 10 Income from Sponsoring (in €) 11 Floor space (in m²) <p>Relational Capital</p> <ol style="list-style-type: none"> 1 Number of staff involved in appointment committees and Habilitation committees 2 Number of co-operation partners (institutes/companies) with a co-operation contract 3 Number of staff who fulfil functions in scientific journals 4 Number of staff who fulfil functions in scientific boards 5 Number of items borrowed from university libraries 6 Number of measures taken by university libraries 	<p>Teaching and Training</p> <ol style="list-style-type: none"> 1 Resources (time) of scientific staff spent on teaching (in full-time equivalent) 2 Number of studies offered 3 Average duration of studies (in semesters) 4 Success rate of students in diploma, bachelor, and master degrees* 5 Number of students 6 Students graduating within the official, prescribed duration of studies (plus one additional semester) in diploma, bachelor, and master degrees* 7 Number of students 8 Number of students who participated in an international mobility programme (outgoing)* 9 Number of foreign students participating in an international mobility programme (incoming) 10 Number of foreign students admitted for diploma, bachelor, master and doctoral programmes without an Austrian diploma, bachelor, or master degree 11 Number of international Joint Degrees/Double Degree programmes 12 Expenditures for projects for developing the teaching courses (e.g. e-learning) (in €) <p>Research and Development</p> <ol style="list-style-type: none"> 1 Allocation of scientific staff according to the different scientific disciplines (in %) 2 Number of competitively funded R&D projects (third-party funded projects) 3 Number of internally funded R&D projects 4 Number of research fellows (scientific staff funded by scholarships) 5 Number of staff funded by competitively funded R&D projects 6 Number of offered PhD studies 7 Number of PhD students 8 Number of PhD students with a degree from a University of Applied Sciences 	<p>Teaching and Training</p> <ol style="list-style-type: none"> 1 Number of study degrees* 2 Number of study degrees with studies abroad financed by scholarships 3 Number of persons who successfully completed a degree programme and participated in continuing training courses 4 Number of study degrees completed within the prescribed duration of study plus one additional semester* <p>Research and Development</p> <ol style="list-style-type: none"> 1 Number of PhD degrees* 2 Number of scientific publications 3 Number of presentations at scientific conferences 4 Number of issued patents 5 Income from R&D projects funded by funding agencies, private or public organisations (third-party funded projects) (in €)*

* used for the formula budget

Indicator system for funding



Template

II.1.1

Definition:

II.1.1 Personal

[pro Universität]

(nach Geschlecht, Verwendungskategorie, Zählkategorie)

[Anzahl]	Gesamtanzahl zum BidokVUni-Stichtag 31. Dezember
Personal	alle Dienst- oder Beschäftigungsverhältnisse, ausgenommen jene in den Verwendungen 13, 15 und 22 gemäß Z 2.6 der Anlage 1 BidokVUni bzw. entsprechende Verwendungen der Anlage 2 BidokVUni
Geschlecht	- Frauen - Männer
Verwendungskategorie	- wissenschaftliches/künstlerisches Personal - allgemeines Universitätspersonal
Zählkategorie	- Köpfe - Vollzeitäquivalente

Berichtsstruktur:

II.1.1

Personal

Hauptberufliches Personal – Vollzeitäquivalente	Frauen	Männer	Gesamt
Wissenschaftliches und künstlerisches Personal gesamt ¹			
Professor/inn/en ²			
Assistent/inn/en und sonstiges wissenschaftliches und künstlerisches Personal ³			
darunter Dozent/inn/en ⁴			
Allgemeines Personal gesamt ⁵			
Insgesamt ⁶			

1 Verwendungen 11, 14, 16, 21 gemäß Z 2.6 der Anlage 1 BidokVUni.

2 Verwendung 11 gemäß Z 2.6 der Anlage 1 BidokVUni.

3 Verwendungen 14, 16, 21 gemäß Z 2.6 der Anlage 1 BidokVUni.

4 Verwendung 14 gemäß Z 2.6 der Anlage 1 BidokVUni.

5 Verwendungen 23, 40 bis 70 gemäß Z 2.6 der Anlage 1 BidokVUni.

6 Verwendungen 11, 14, 16, 21, 23, 40 bis 70 gemäß Z 2.6 der Anlage 1 BidokVUni.

Haupt- und nebenberufliches Personal – Kopffzahl ohne Karenzierungen	Frauen	Männer	Gesamt
Wissenschaftliches und künstlerisches Personal gesamt ¹			
Professor/inn/en ²			
Assistent/inn/en und sonstiges wissenschaftliches und künstlerisches Personal ³			
darunter Dozent/inn/en ⁴			
darunter über F&E-Projekte drittfianzierte Mitarbeiter/innen ⁵			
Allgemeines Personal gesamt ⁶			
Insgesamt ⁷			

1 Verwendungen 11, 12, 14, 16, 17, 21, 24, 25, 30 gemäß Z 2.6 der Anlage 1 BidokVUni.

2 Verwendungen 11, 12 gemäß Z 2.6 der Anlage 1 BidokVUni.

3 Verwendungen 14, 16, 17, 21, 24, 25, 30 gemäß Z 2.6 der Anlage 1 BidokVUni.

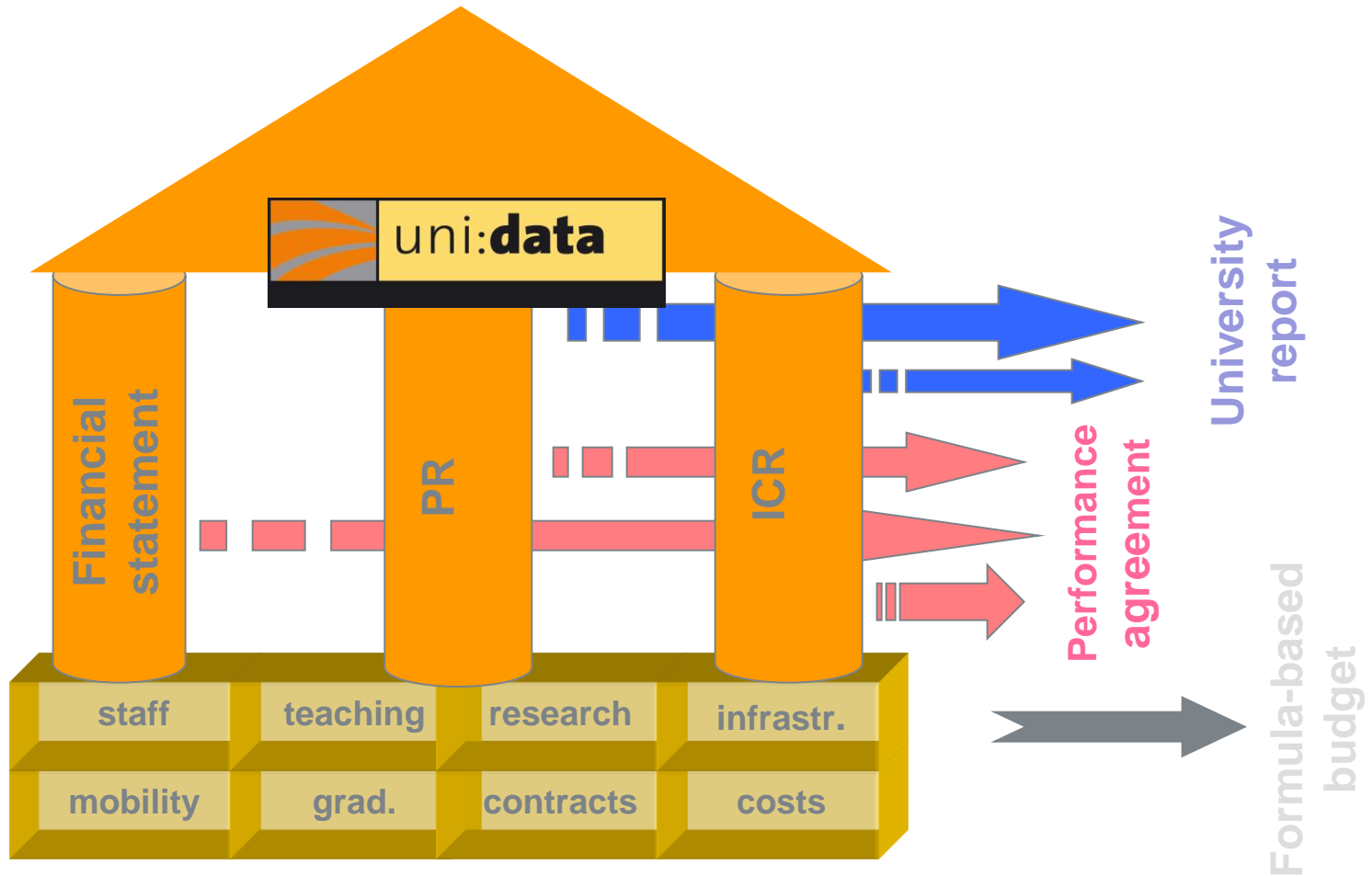
4 Verwendung 14 gemäß Z 2.6 der Anlage 1 BidokVUni.

5 Verwendungen 24, 25 gemäß Z 2.6 der Anlage 1 BidokVUni.

6 Verwendungen 23, 40 bis 70 gemäß Z 2.6 der Anlage 1 BidokVUni.

7 Verwendungen 11, 12, 14, 16, 17, 21, 23, 24, 25, 30, 40 bis 70 gemäß Z 2.6 der Anlage 1 BidokVUni. Personen mit mehreren Verwendungen sind nur einmal gezählt.

Data Warehouse as maintained for and on behalf of the Ministry



Studierende Universitäten

Studierende an Universitäten - Zeitreihe Wintersemester

Quelle: Datenmeldungen der Universitäten auf Basis UniStEV zum jeweiligen Stichtag

Datenprüfung und -aufbereitung: bm.wf, Abt. I/9

A screenshot: Structural analysis of students at Austrian universities

Staatsangehörigkeit: <Alle>
 Staatsgruppe (Ö, EU, andere): <Alle>
 EU-Mitgliedsstaaten: <Alle>

Semester	Staatengruppe (Ö, andere)	Data Point(s)		Studierende		Frauen-/Männeranteile in %	
		Geschlecht	Frauen	Männer	Gesamt	Frauen	Männer
Wintersemester 2006 (Stichtag: 28.02.07)	Inländer/innen	119.763	104.300	224.063	53,5%	46,5%	
	Ausländer/innen	95.657	82.660	178.317	53,6%	46,4%	
Wintersemester 2005 (Stichtag: 28.02.06)	Inländer/innen	24.106	21.640	45.746	52,7%	47,3%	
	Ausländer/innen	116.086	101.565	217.651	53,3%	46,7%	
Wintersemester 2004 (Stichtag: 28.02.05)	Inländer/innen	93.328	80.979	174.307	53,5%	46,5%	
	Ausländer/innen	22.758	20.586	43.344	52,5%	47,5%	
Wintersemester 2003 (Stichtag: 28.02.04)	Inländer/innen	111.470	98.610	210.080	53,1%	46,9%	
	Ausländer/innen	91.173	79.638	170.811	53,4%	46,6%	
Wintersemester 2002 (Stichtag: 28.02.03)	Inländer/innen	20.297	18.972	39.269	51,7%	48,3%	
	Ausländer/innen	109.145	97.084	206.229	52,9%	47,1%	
Wintersemester 2001 (Stichtag: 28.02.02)	Inländer/innen	89.048	78.222	167.270	53,2%	46,8%	
	Ausländer/innen	20.097	18.862	38.959	51,6%	48,4%	
Wintersemester 2000 (Stichtag: 28.02.01)	Inländer/innen	104.719	94.731	199.450	52,5%	47,5%	
	Ausländer/innen	86.363	77.407	163.770	52,7%	47,3%	
Wintersemester 2000 (Stichtag: 28.02.01)	Inländer/innen	18.356	17.324	35.680	51,4%	48,6%	
	Ausländer/innen	101.361	93.402	194.763	52,0%	48,0%	
Wintersemester 2000 (Stichtag: 28.02.01)	Inländer/innen	84.819	77.695	162.514	52,2%	47,8%	
	Ausländer/innen	16.542	15.707	32.249	51,3%	48,7%	
Wintersemester 2000 (Stichtag: 28.02.01)	Inländer/innen	124.617	117.981	242.598	51,4%	48,6%	
	Ausländer/innen	106.279	100.570	206.849	51,4%	48,6%	
Wintersemester 2000 (Stichtag: 28.02.01)	Inländer/innen	18.338	17.411	35.749	51,3%	48,7%	
	Ausländer/innen						

Implementation: Case of the University of Innsbruck

IC Reports

	Ist	Soll
Strategic goals R&D		

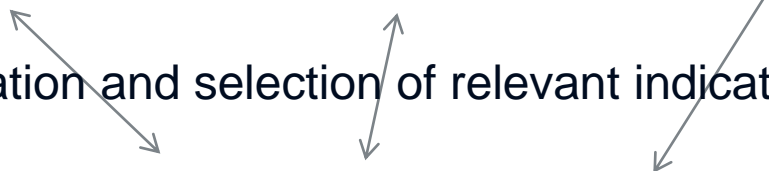
Performance Contract and Report

	Ist	Ziel
Goal R&D		

Development plan

Strengthening R&D		

Coordination and selection of relevant indicators



ICR / Data Warehouse

Experiences from Austrian Universities

- Benefits of IC reporting are (still) discussed controversially within universities, which though leads to productive discussions, ICR is still often regarded as bureaucratic exercise
- IC reporting system is partly overlapping with other reporting and management systems (performance contract, quality management, annual account)
- The culture within universities has changed in the last decade and some indicators are considered as “common good”, e.g. number of publication
- However, IC terminologies and IC “mind-sets” have not been widely used and adopted
- IC reports hardly helped to formulate more clearly university goals and strategies

Experiences from Austrian Universities

- Benefits and effects are seen in:
 - Provision of information for strategy development and priority setting
 - IC reports are partly used, to control and monitor the achievement of goals and to define measures, mainly within the performance contracts
 - IC reports increase internal transparency
- However, in order to use IC reports for resource allocation and strategic control managers need to focus on a smaller set of indicators and partly define their own specific indicators
- Indicators which are related to funding have the greatest impact (e.g. publications)
- Austria over-regulated the system and defined too much compulsory indicators !

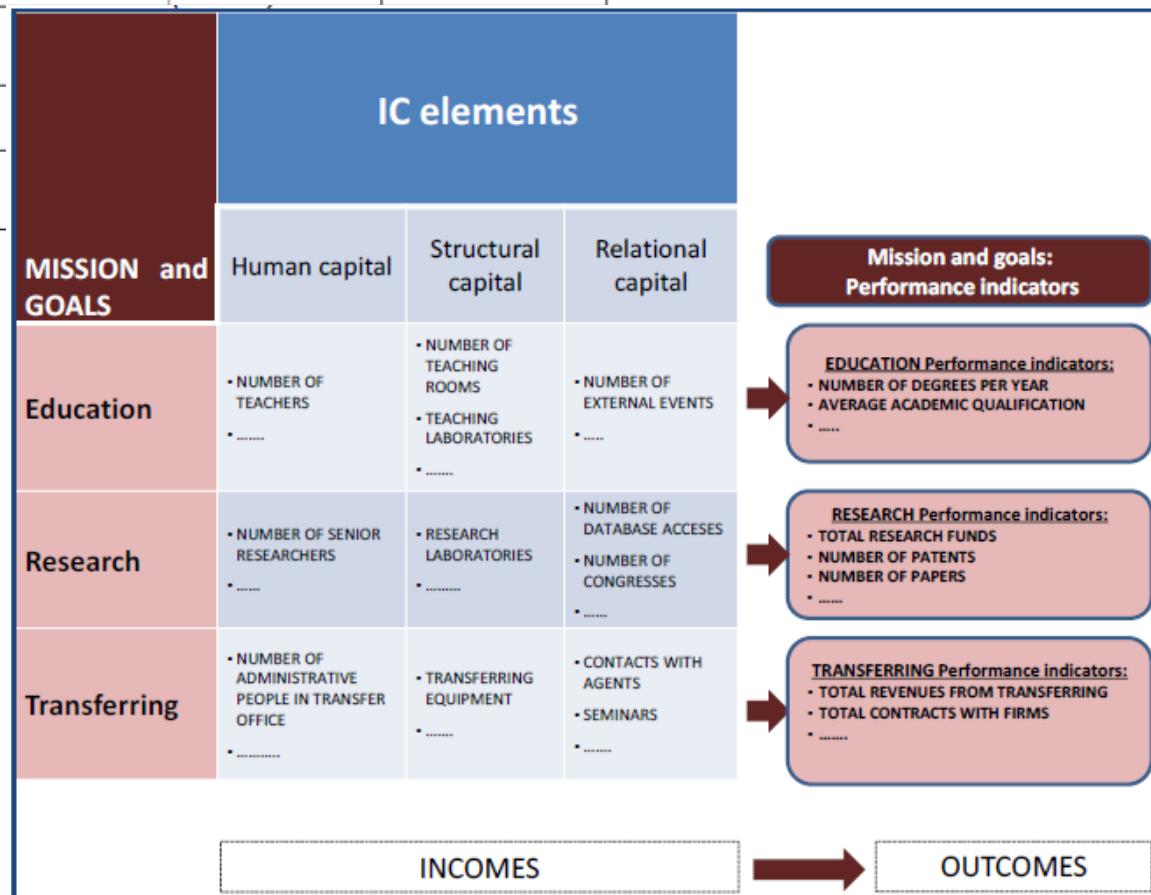
Other frameworks: EOU & ICPOM

Strategic Matrix of the EOU:

	Funding	Human Resources	Academic Outcomes	Third Mission	Governance
Autonomy	Key Questions & Indicators				
Strategic capabilities					
Attractiveness					
Differentiation Profile					
Territorial Embedding					

Intellectual Capital Performance-Oriented Model in universities (ICPOM):

Source: Sanchez et al.

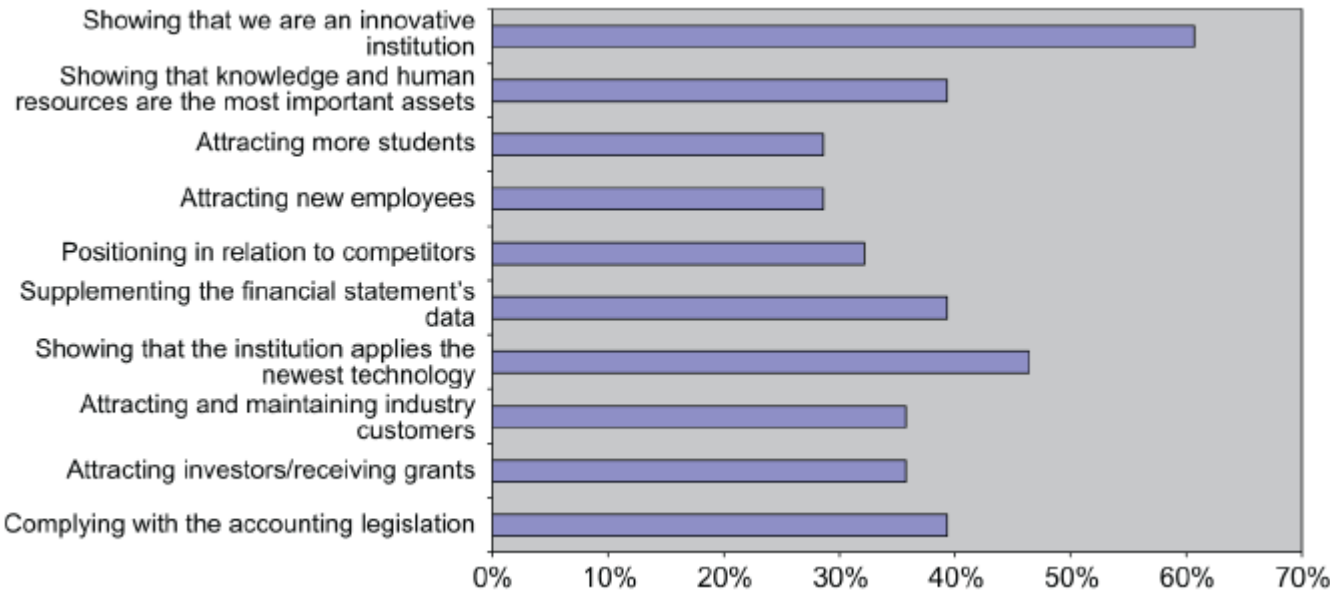


Source: Gonzales-Loureiro & Teixeira

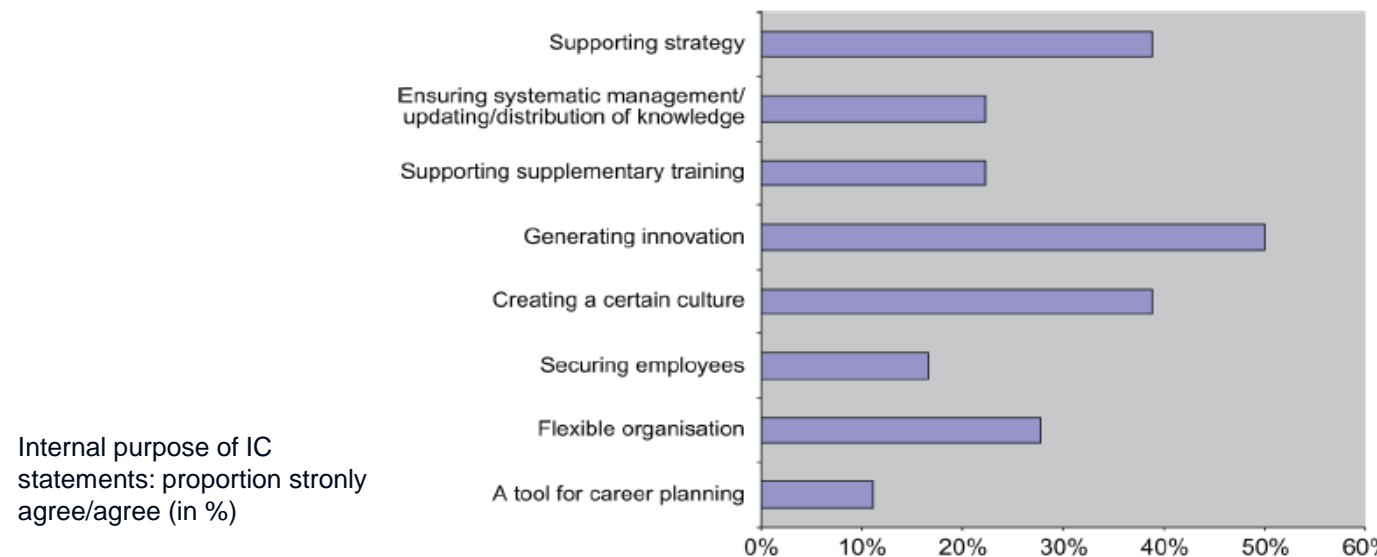
Empirical evidence about the use and benefits of IC reporting is rare...

- Apart from a few case studies of some universities, a study worthwhile mentioning is the one of Bezhani (2010):
 - he used content analysis was used to examine the amount and nature of IC disclosure of the annual reports of 30 UK universities
 - the amount of IC information disclosed by UK universities in their
 - annual reports is rather low. UK universities were identified as having low awareness of IC, only one university had a section in the annual report called intellectual capital
 - Research had the highest frequency of disclosure (e.g. publications, contracts) followed by relational capital (e.g. number of conferences hosted) and human capital (e.g. number of staff), many universities report about their investments in libraries (structural capital)
 - There is no relationship between the ranking and size of the university on the one hand and the amount if IC disclosure on the other hand

Empirical study of Bezhani (2010): external and internal use



External purpose of IC statements: proportion strongly agree/agree (in %)



Internal purpose of IC statements: proportion strongly agree/agree (in %)

What we know generally about benefits, pitfalls and impacts...

1. The interpretation of IC is contingent on the context and aims of the organisation/unit
2. The aggregation of indicators on the organisational level is problematic if the organisational units are heterogeneous
3. We do not have a standard model and commonly defined indicators on the international level so far, thus, at present comparisons are limited, however, current benchmarking exercises are promising
4. Trade-off between external reporting and internal management system needs to be discussed
5. Input and output relations cannot (yet) be measured in quantitative terms
6. The process of implementation and first implementation provides the main benefit: discussion of goals and strategies, trade-offs, HR policy, etc.

The way forward? International benchmarking activities

- Apart from well-known rankings such as Times Higher Education Ranking (league tables) etc. there are more relevant:
- US: Benchmarking university IT service (2004)
- UK: HEFCE Benchmarking initiative (2007)
- Germany: CHE Benchmarking exercise (e.g. of Technical Universities)
- Cross Country comparisons based on DEA (e.g. Agasisti 2007)
- Benchmarking Agreement by some Nordic universities (2007), (funding, stuff, output)
- 2006-2011: European Benchmarking Initiative in Higher Education - EBI-I and EBI-II Projects (ESMU - European Center for Strategic Management of Universities)
- 2007: AQUAMETH (Advanced Quantitative methods for the analysis of performance of public sector research) database
- 2009: Feasibility Study for Creating a European University Data Collection (EUMIDA)
- 2011: U-Multirank: Design and Testing the Feasibility of a Multidimensional Global University Ranking

EUMIDA Framework and Variables for HEI indicators

Environment (international/national/regional)

Individual HEI

Input

- Financial resources
- Human resources
- Physical infrastructure

Processes

- Organization
- Decision-making processes
- Strategy

Output

- Educational
- Research
- Third mission

Category	Variable	Breakdown requested
Expenditures	Total expenditures	<ul style="list-style-type: none"> • current expenditures: <ul style="list-style-type: none"> ◦ personnel expenditures ◦ non-personnel expenditures • Capital expenditures
Revenues	Total revenues	<ul style="list-style-type: none"> • core budget • third-party funding • student fees.
Personnel	Number of personnel	<ul style="list-style-type: none"> • academic and non academic personnel. • for academic personnel: breakdown national/foreign. • for academic personnel breakdown by fields of science.
Educational activities	Enrolled students at ISCED 5 and 6	<ul style="list-style-type: none"> • by fields of education. • between national and foreign students.
	Number of graduations at ISCED 5	<ul style="list-style-type: none"> • by level of education.
	Number of graduations at ISCED 6	<ul style="list-style-type: none"> • by fields of education • between national and foreign students. • by fields of education • between national and foreign students.
Research and technology outputs	R&D expenditures	No breakdown requested
	Patents	No breakdown requested
	Spin-off companies	No breakdown requested
	Private funding	No breakdown requested

Multidimensional Global University Ranking: Conceptual grid

context	<i>Stages</i>	Enabling		Performance	
	<i>Functions & Audiences</i>	Input	Process	Output	Impact
	Functions				
	Teaching & Learning				
	Research				
	Knowledge Transfer				
	Audiences				
	International Orientation				
	Regional Engagement				

Source: Ziegele

Summary

1. Universities are knowledge-based organisations and need managerial and reporting instruments
2. IC Reports focus on new dimensions (HC, SC, RC) often not systematically managed in universities
3. However, there is a trend in Austria to use and talk mainly about performance and outputs and less on IC and input indicators
4. Potential danger of a divergence between external and internal reporting, and, there is some trade-off between external reporting and internal management use
5. Universities have to focus on a condensed set of indicators for effective strategic control
6. Development and reference to a general indicator framework (e.g. benchmarking) or specific IC framework on the international level might be helpful for further diffusion and comparison

Information and Contact

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