AUSTRALIAN UNIVERSITIES AND INTELLECTUAL CAPITAL REPORTING: CASE STUDY: THE GROUP OF EIGHT

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Abstract

Australian universities are the major exporter of higher education in the country. As knowledge producers, they face the challenges of globalization, and the financial resources needed to maintain their competitive advantage. The current funding systems that use traditional resources like students' fees and government grants are unable to meet these requirements. This could well force Australian universities to improve their structures; aiming for a higher international standard and recognition of a more visible and dynamic competitive system to attract funds. The purpose of this paper is to investigate the level of intellectual capital disclosure and the existence of any standalone intellectual capital report (ICR) by Australian universities. Four universities from the eight leading Australian universities known as the Group of Eight (Go8) have been chosen at random for this study. The universities in the Group of Eight compared to other Australian universities are highly research-concentrated and subsequently, have valued reputations.

Findings indicate that sample universities disclose some intellectual capital information via their annual reports. However, there has been no attempt, at the institutional or systems-wide level, to produce a standalone intellectual capital report (ICR) with standard indicators. In fact, a low rate of innovation, poor human resources and a weak relationship with business need a new managerial approach. Accordingly, results suggest a change within the current system.

This study strongly recommends Australian universities to utilize a universal framework for measuring, managing and reporting of intellectual capital information to meet the global and competitive challenges ahead. Currently, European universities – as Australian competitors - are required to disclose a standalone intellectual capital report to construct a harmonized national university system. Theoretical implications of this paper assist with the classification and search for appropriate indicators for measurement and disclosure of Intellectual capital in universities. The practical implication of this paper could be of interest to many different parties, such as institutional investors, managers, policy makers and university scholars.

Keywords: Intellectual Capital, Higher-Education, Australian Universities, Intellectual Capital Reporting

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Introduction

The first aim of this study is to investigate the intellectual capital reporting in Australian universities. Intellectual capital (IC) developed and became a major driver for competitive advantage, not only for business but for universities and other service industries. Universities are the major players in knowledge producing and innovation systems. Investment in human resources and research are the most important factors to generate and develop knowledge and IC (Cañibano and Sánchez, 2004). A standard report that analyses these investments and reveals the details to the interested parties can help the management and measurement of IC. A comparable system to create a universal communication mechanism, and facilitates mutual relationships between different parties such as business, practitioners and academics is essential. Intellectual Capital Reporting (ICR) as a comparable index can create this link. How universities measure and manage their IC and which tools and resources can be used in effectively measuring IC to improve reporting and performance is the second focus of this paper.

The final scope and third area of focus to be examined is the relationship between accountability, transparency and IC disclosure.

Definition of intellectual capital

The 21st century is recognised as the era of intangible assets and intellectual capital. Historically, an

organisation's value is measured by reference to their tangible assets, e.g., their physical capital, financial capital, returns on investment etc. This is recognised as a limited approach, which understates the true value of organisations, in particular, those concerned with services rather than physical outputs (Burton, 2001). Intangible asset terminology is derived from an accounting concept. Intellectual capital, on the other hand, is related to human capital and knowledge management. Both terms refer to the same intangible value in the employees' heads regarding their working capability to perform the task for an organization (Fazlagic, 2005).

A diversity of players, such as academics, accounting bodies, policy makers, managers and investors with different interests make it hard to have a universally accepted definition for IC (OECD, 2008). In addition, there are differences between practical realities and theoretical definitions and classifications. Stewart (cited in Bontis, 1996), defined IC as "the intellectual material that has been captured, formalized and leveraged to produce a higher-valued asset." Stewart (1997) classifies IC as a combination of Human Capital (HC), Structural Capital (SC) and Customer Capital (CC) (Figure 1).

The elements of IC:

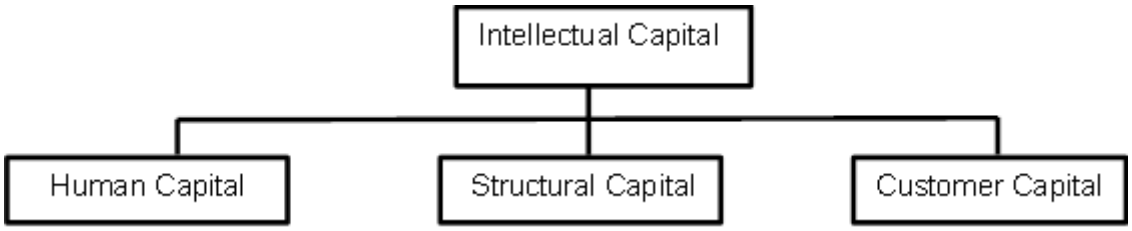

Figure 1. Elements of IC (Steward, 1997)

Human capital is "the individual's capability to provide solutions for their customers" (Stewart, 1997). Structural capital converts "know-how into the group's property; and customer capital allows relations with customers to be perpetuate" (Stewart, 1997).

The Organisation for Economic Co-operation and Development (OECD, 1999) defines IC as "the economic value of two categories of intangible assets of a company: (a) organisational ('structural') capital and (b) human capital" (OECD, 2008). Structural capital is later divided into internal and external capital (Schneider, 2007). This definition is regarded by some researchers as one of the practical definitions and classifies IC as Human capital, internal and external capital (Edvinsson and Malone, 1997; Kaplan & Norton, 1992; Petty and Guthrie, 2000; Roos, 1997; Stewart, 1997; Sveiby, 1997). This classification labelled as "*Intellectual Capital Approach"* is used by a number of companies and organizations (e.g., Skandia and Sys-Com) as an initial framework for measuring and reporting IC (Schneider, 2007). In summary, almost all definitions appear to be in agreement that intellectual assets are non- physical assets with three distinctive keys :1) potential for economic profits; 2) short in physical material; and 3) can be traded, retained by a firm, and generally include Research and Development (R&D), trademarks and patents (OECD, 2008).

This study considers the Intellectual Capital Approach as a platform for measuring Intellectual Capital Reporting (ICR) in the educational sectors. Table 1 shows the detail of three aspects of an Intellectual Capital Approach.

Table 1. Intellectual Capital Approach (Petty & Guthrie, 2000 cited in Schneider, 2007)

Intellectual Capital Approach	Alternative label(s)	Description
Internal Capital	Organisational capital Structural capital Internal relations	Refers to the knowledge embedded in organisational structures and processes, and includes patents, research and development, technology and systems.
External Capital	Customer capital Relational capital External relations	Comprises elements of an organisation's patrimony-related customer relations: relationships with customers and suppliers, brand names, trademarks and reputations.
Human Capital	Employee competence	Refers to the set of all the knowledge and routines carried within the minds of the members of the organisation and includes skills/competencies, training and education, and experience and value characteristics of an organisation's workforce/employees.

Why study the intellectual capital reporting of a university?

Universities and other higher-education institutions need more financial resources to maintain their competitive advantage and face globalization challenges. The main reasons for measuring and disclosing the ICR of universities are:

Intellectual property rights in higher education needs to develop to a higher level than before. The current funding systems which use traditional resources like students' fees and government grants are unable to meet these requirements. Whenever public funds are engaged, full access to information is an essential right of stakeholders.

- Universities as knowledge producers are in the competitive market to attract funds. The main input and output of universities is knowledge, which consists of intellectuals (intangibles). Intellectual capital reporting (ICR) can give them a comparable index, and create a strong link between the industry and universities.
- A new comparable system can create a general language that facilitates a mutual relationship between business practitioner and academics (Fazlagic, 2005).

Furthermore, measuring and reporting IC can help to identify what does not work properly and to improve what works. The clearly defined set of indicators in the standard reporting accepted by universities and industries would not allow for any deficiency or low performance areas in the organization (Fazlagic, 2005). This can improve performance, measurements, assessment of intangible assets, and allocation of resources in the universities. There has not been any previous research for ICR in Australian universities. This study contributes to the existing literature and encourages IC disclosure as a good foundation for future research in higher education.

How to measure the intellectual capital of a university

One of the methods used to measure the IC in a university is a framework (Measurement matrix) categorizing IC in the three forms of *Resources*, *Activities* and *Results* (developed by Danish Agency for Trade and Industry in Denmark, Cited in Fazlagic, 2005). Resources in a university are the number of staff and researchers, and the share of those researchers in a total number of employees. Activities are investment in human capital and relational capital. And Results are the objective achievement by resources and activities. Table 2 shows this framework (Measurement matrix cited in Fazlagic, 2005):

Table 2. IC Measurement matrix (Fazlagic, 2005)

Types Categories	What is there? (Resources)	What has been invested? (Activities)	Which objectives have been achieved? (Results)
Human Capital	Number of researchers Share of researchers in total employment Average age of a researcher	Research spending per employee ITC spending per employee Time spent in internal seminars per employee Training & inbreeding (share of researchers who are graduates of the university)	Number of newly recruited staff Number of contracts turned down with regret Staff satisfaction Staff turnover Added value per employee Composite employee satisfaction index Average number of publications per researcher
Structural Capital	Number of chairs (departments) Average employment in a chair (department) No. of PC per employee	Total investment in research infrastructure Success ratio in project acquisition Research spending per chair (department) Participation in international conferences (no. of conferences attended, no. of researchers attending conferences) No. of research projects underway (including EU projects)	No. of international students Share of international staff Name recognition and reputation (based on press ranking lists) Student satisfaction index Number of students Number of courses Average number of publications per chair (department)

The most significant output of a university is knowledge in the forms of new publications, research results and educated students (Leitner, 2002). Based on qualities of diverse outputs in the university, IC can also be measured. For instance: financial outputs like income and profit, and non-financial results such as organizational outputs (training courses, Research & Development, publications), as well as human-relationship outputs (client and user, staff/student, problem-solving ability and client satisfaction).

The natural steps to increase quality in higher education in a competitive and transparent way are measurement, management, and disclosure of IC (Sanchez, 2006). These factors are considered to contribute to the improvement in the core principles of the higher-education industry. IC has three major components in the universities: Human, Structural and Relational capital. Leitner (2002) offers a conceptual framework (Figure 2) for IC reporting in the universities, which consists of four main parts: "the goal, the intellectual capital, the performance processes and the impacts" (Leitner, 2002,). The model shows the intangible resources transformation process when delivering different activities like research, education and training, etc. The result of this process is a production of different outputs based on general and specific goals (Leitner, 2002).

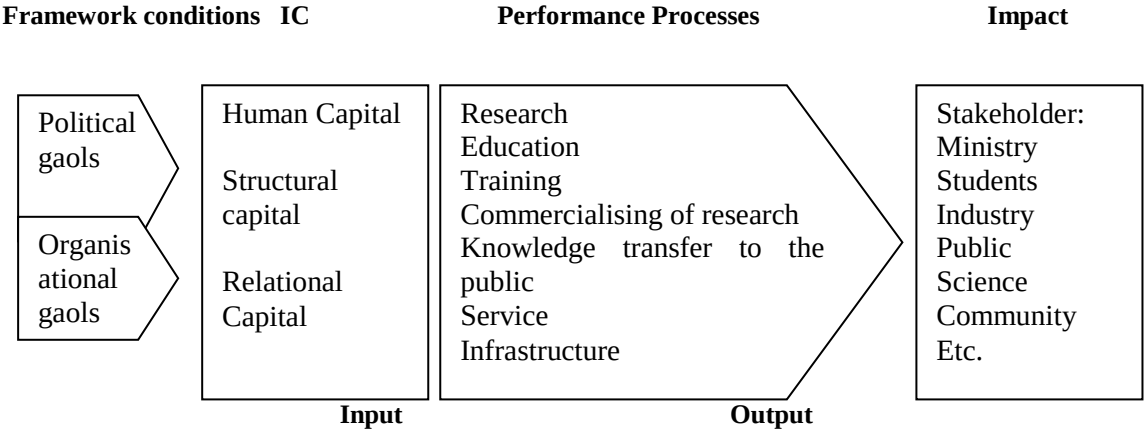

Figure 2. Model for IC Reporting in the universities (Leitner, 2002)

The organizational goals are guided by political agenda and educational ministry, which in Australia is based on the Australian educational policy. However, universities characterize their own goals. The IC in this model is divided into three elements of human, structural and relational capital. Human capital is the staff of the university; structural capital is the routine of the process system, and relational capital is the network and relationship between the researcher and business projects. The Leitner model outlined six performance processes – research, education, training, commercialising of research, knowledge transfer to the public, service and infrastructure – which can be developed and increased or decreased based on the university area of specification, such as Business School, Faculty of Education, Arts etc. These elements are mostly captured from the measures of process and output (Leitner, 2002). The achievements of these performance processes are measured in the category of Impact (result/effects). In this category the stakeholders of a university evaluate the performance on a quantitative basis. Thus, there is a need for a list of the indicators to be developed based on what was used in the universities, and what is proposed based on the literature and findings from the evaluation research (Leitner, 2002).

Sanchez (2006) suggests a list of the indicators (Table 3) which can be an initial framework within universities for disclosure of IC and to produce the IC University Reporting (ICUR). Many of these indicators have been gathered by universities for some years, and they are not totally new, such as the number of researchers, publications, patents etc. However, they have previously been gathered by an unsystematic method and spread through different parts of annual reports. ICR should be prepared as a new homogeneous information model, in a standalone document (Sanchez, 2006).

Sanchez's indicators were part of an intellectual capital university (ICU) report that he designed for the Observatory of European Universities (OEU) project to propose an IC disclosure pattern for universities. The report was fully tested at the Autonomous University of Madrid and partly tested on other OEU universities (Sanchez, 2009). It was a guideline that covers management strategy and internal policy, such as setting goals and visions to indicators for disclosure. The three parts of the Sanchez ICU report are:

"1) Vision of the institution, which aims to present the main general objectives and strategy and the key drivers to reach them. (2) Summary of intangible resources and activities, aiming to describe the intangible resources that the institution can mobilize and the different activities undertaken or plans to improve them. (3) System of indicators, aiming to allow the internal and external bodies to assess the performance and estimate the future of the institution correctly. Similarly, these indicators are classified into human, organisational and relational capital" (Sanchez, 2009).

Sanchez's guideline points out a university's vision and goals, reviewing them and considering how the activities produced can meet the objectives. Associating the vision of the institution with the measurement of IC can show what should be

measured and what should not, and it creates a structure for indicators. The indicators show what resources are priorities and subsequently what activities are launched. The indicators can provide the comparison in two ways: Among institutions, through comparing different organisations in a given period of time. Comparison along a time frame: for instance, it compares data through two different time periods. This comparison helps the public to observe progress in the performance of an organization based on the organizational objectives and goals (Sanchez, 2006).

The IC Report creation is a dynamic process, "in which the university may learn" (Sanchez, 2006). The reasonable conclusion of the IC report disclosure in the university seems to be communication between resources, strategy and stakeholders.

Case study and Results

Eight leading Australian universities are joined together and have launched a highly research concentrated coalition known as Group of Eight (Go8). They have trained Nobel Prize winners and have high reputation in education and research. Four Australian universities from Group of Eight (Go8) are randomly chosen for this study. Using within-case and cross-case analysis indicate a gap between the setting of goals (vision) and accomplishment of these objectives (mission), which has a direct impact on the output for a university.

An institution's vision looks at and discusses what the organisation is and what it wants to be in the future (Sanchez, 2006). The mission statement indicates the institution's main strategy, objectives and the key factors (or vital intangibles) to achieve these objectives (Sanchez, 2006).

In the vision section, all four university cases indicate the importance of international growth and financial sustainability. The four sample universities' mission statements also signify attainment of international standards and recognition. However, the Go8 mission of statement only hints at global engagement, and does not mention the high achievement of international standards and recognition. Engagement in global issues and achieving international standards, especially at the highest level require the implementing of a similar reporting framework. This makes it clear why there is a need for a harmonized environment with international higher-education institutions and their reporting systems.

The content analysis of annual reports of each sample university reveals the majority of IC indicators based on the three above ICR Models (Fazlagic, Leitner, and Sanchez) are not addressed in their annual reports. Table 3 shows the disclosure of IC in the chosen cases (UniA is first university randomly chosen from Go8, the second one called UniB, third one named UniC and the last one labelled UniD) based on the Sanchez ICU Report model:

Table 3. The ICU Report (Sanchez, 2009)

	Uni A	Uni B	Uni C	Uni D
Section 1. Vision of the institution				
What are the main objectives of the institution?	✓	✓	✓	✓
What makes a difference with respect to other institutions?	✓	✓	✓	✓
What resources (human, organisational and relational) are needed to reach the objectives and provide the target services while ensuring quality?	☐	☐	☐	☐
How are those intangible resources related to the *value* of the institution?	☐	☐	☐	☐
What is the combination of tangibles and intangible resources that	☐	☐	☐	☐
creates *value*?				
Section 2. Summary of intangible resources and activities				
Which existing intangible resources should be strengthened?	☐	☐	☐	☐
What new intangible resources are needed?	☐	☐	☐	☐
What activities can be launched?	☐	☐	☐	☐
What activities should be prioritised?	✓	✓	✓	✓
Section 3. A system of indicators for IC resources				
Human capital				
Efficiency				
1. Total funds for research and development (R&D)/number of researchers.	☐	☐	☐	☐F
2. Number of PhD students/number of researchers?	☐	☐	☐	☐NF
3. Number of researchers / number of administrative personnel	☐	☐	☐	☐NF
Openness				
4. Number of visiting fellows from other universities / number of researchers (per field), (A. national and B. international)	☐	☐	☐	☐NF
5. Number of PhD students coming from other universities / total number PhD students (per field) (A. national and B. international)	☐	☐	☐	☐NF
Organisational capital				
Autonomy				
6. Amount of resources devoted to R&D / total budget.	☐	☐	☐	☐F

7. Structure of the research budget by scientific fields (by disciplines).	☐ ☐ ✓ ☐F
8. Amount of budget constraints (personnel+ equip cost) / research Budget	☐ ☐ ☐ ☐F
9. Research budget managed at the central level / research budget.	☐ ☐ ☐ ☐F
10. Lump-sum for research (A. governmental funding and B. non-governmental funding) / total funding for research.	✓ ✓ ✓ ✓F
11. Share of staff appointed through autonomous formal procedure (at the university level +(consider procedures dealing with positions and academics).	☐ ☐ ☐ ☐NF
12. Non-core funding / A. total budget and B. budget for research.	☐ ☐ ☐ ☐F
13. Thresholds imposed to fund-raising (including weight of tuition fees on total budget and incentives given to private donors to support research activities)	☐ ☐ ☐ ☐NF
14. Structure of non-core funding	☐ ☐ ☐ ☐NF
Codification of knowledge through publications	
Table 3: The ICU Report (Sanchez, 2009)	
15. Number of publications by disciplines / total publications of the uni.	☐ ☐ ☐ ☐NF
16. Number of co publications per field,	☐ ☐ ☐ ☐NF
(Six Frascati levels) (A. national and B. international).	
17. Number of citations of publications by discipline / total uni publications.	☐ ☐ ☐ ☐NF
18. Share of specialisation publication in a discipline / total uni publications.	☐ ☐ ☐ ☐NF
19. Indicators of production for books, chapters, e-journals, etc.	☐ ☐ ☐ ☐NF
20. Indicators of visibility for books, chapters, e-journals, etc.	☐ ☐ ☐ ☐NF
Codification of knowledge through intellectual property	
21. Number of active patents owned by the university (by field).	☐ ☐ ☐ ☐NF
22. Number of active patents produced by the university (by field).	☐ ☐ ☐ ☐NF
23. Returns for the university; licenses from patents, copyright.	✓ ✓ ✓ ✓F
24. Joint IPRs (Intellectual Property Rights) by uni professors.	☐ ✓ ☐ ☐NF
Strategic decisions	
25. Existence of a strategic plan for research.	☐ ☐ ☐ ☐NF
26. Existence of mechanisms to evaluate the strategic research plan, Frequency, Brief description of the process.	☐ ☐ ☐ ☐NF
Relational capital	
Spin-off	
27. Number of spin-offs supported by the university.	☐ ☐ ✓ ✓NF
28. Number of spin-offs funded by the university and percentage above the total number of spin-offs (funded + supported).	☐ ☐ ☐ ☐NF
Contracts and R&D projects	
29. Number of contracts with industry (by field and by a competitive/non- competitive classification).	☐ ☐ ☐ ☐NF
30. Number of contracts with public organisations (by field and by a competitive/ non-competitive classification).	☐ ☐ ☐ ☐NF
31. Funds from industry / total budget for research.	☐ ☐ ☐ ☐F
32. Funds from public organizations / total budget for research.	☐ ☐ ☐ ☐ F
Knowledge transfer through technology transfer institutions	
33. Existence of a technology transfer institution.	☐ ☐ ☐ ☐NF
34. Checklist of activities of the TTI, Intellectual property management, Research contract activities, Spin-offs, Others.	☐ ☐ ☐ ☐NF
35. Budget of TTI / total university budget.	☐ ☐ ☐ ☐F
Knowledge transfer through human resources	
36. Number of PhD students with private support / total PhD students.	☐ ☐ ☐ ☐NF
37. Number of PhD students with public support / total PhD students.	☐ ☐ ☐ ☐NF
Participation into policy making	
38. Existence of activities related to policy making.	✓ ✓ ✓ ✓ NF
39. Checklist of activities related to policy making, Involvement into national and international standards setting committees, Participation in the formulation of long-term programs, Policy studies, Involvement in social and cultural life	☐ ☐ ☐ ☐NF
40. Existence of special events serving social and cultural life of society.	☐ ☐ ☐ ☐NF
41. Checklist of special events serving social and cultural life of society, Cultural activities, Social activities, Sport activities, others.	☐ ☐ ☐ ☐NF
42. Existence of specific events to promote science.	☐ ☐ ☐ ☐NF
43. Checklist of specific events to promote science, to classical involvement of researchers in dissemination and other forms of public understanding of science, Researchers in media, Researchers in forums, Others.	✓ ✓ ✓ ✓NF

Notes: F – financial indicator; NF – non-financial indicator.

The table shows only the Vision and Mission sections (section 1 and 2) have addressed some of the IC information, and that most of IC indicators were not addressed by any samples. The main reason is Australian universities still do not see a need for disclosure of IC based on unified and standard indicators as a common language. Although the content analysis of annual reports of each university shows that IC (specifically human & structural capital), to a limited extent, is reported. However, there is a lack of indicators and access to detail of IC for outside researchers and stakeholders. Furthermore, there is not a harmonized or a standard classification, which makes it difficult for the comparison. There is a need for a standard index (indicators) and common language to interpret the data for stakeholders**.** For instance, in all universities, total funds for research and development (R&D) and researcher staff numbers are disclosed in the financial reports. Yet, there is not any standard index to show the percentage of the R&D's funds to the researcher staff number in comparison to other cases.

Conclusion

The assessment and reporting of IC have a relatively long history, and cannot be considered as a new one. However, the identification of a university IC and its links with input, knowledge production, processes and output in the university sector is a new idea. A description of a university's goals and strategies is an essential step for preparing the IC report. A framework for IC measurement and management within universities could identify and develop the culture to manage and report, as well as contributing to the demand for transparency. Leitner (2004) indicated: "proper management of IC at universities has a significant impact on the performance and efficient use of the invested financial funds." This paper recognizes the necessity for a new reporting system and harmonized framework for disclosure in Australian universities. In addition, it supports the concept of accountability, considerable assessment of, and concern regarding the activities of Australian universities.

Since the main input and output of universities are intangible, the disclosure of IC facilitates accountability to stakeholders. There are suggestions that by incorporating disclosure of IC items into the annual reports, accountability and transparency to stakeholders will be improved. This research has provided an initial insight into the extent and quality of IC disclosure in the annual reports of Australian universities. The area has been relatively unexplored in the literature both in terms of subject (IC reporting by universities) and situation (in Australia). Despite these limitations, this paper offers a valuable contribution to the research needed in this area, and recognizes a gap between the vision and mission of the Australian Universities. This study indicates a need for a framework through which IC disclosures can be made in the annual report of educational institutions and universities.

Results of this study show that IC disclosed by local universities is neither in harmony with European ICU guidelines nor is it comparable amongst the universities themselves. In addition, the information does not occur in a consistent framework. This paper also highlights areas that are not being adequately disclosed in reports. The IC disclosure index used in European studies can also be utilised by local universities. The framework can be used for future IC disclosures to ensure they are addressing the needs of their stakeholders.

These results have also revealed many potential areas for future research, including further studies on each of the independent indicators and their effect on IC investment. Another area for future research could be the relationship between ICUR and Results. A systematic investigation of the IC index can disclose which input and indicator are more significant in determining the higher-quality outputs, and whether the disclosure of a particular IC indicator has a positive relationship with the quality of the output.

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