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ARTICLE

SUSTAINABLE COMPETITIVE INTELLIGENCE CAPABILITY FOR STRATEGIC TRANSFORMATION IN PROVINCIAL VOCATIONAL COLLEGES: EVIDENCE FROM YVCS UNDER CHINA'S DOUBLE HIGH PLAN

CAPACIDADE DE INTELIGÊNCIA COMPETITIVA SUSTENTÁVEL PARA A TRANSFORMAÇÃO ESTRATÉGICA EM FACULDADES VOCACIONAIS PROVINCIAIS: EVIDÊNCIAS DO YVCS SOB O PLANO DOUBLE HIGH DA CHINA

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ABSTRACT

Purpose: This study examines how Sustainable Competitive Intelligence (SCI) capabilities support the strategic transformation of vocational education institutions under China's Double High Plan. Specifically, it investigates the role of intelligence governance, environmental scanning, benchmarking, intelligence dissemination, and evidence-based decision-making in enhancing the competitiveness of Yunnan Vocational College of Sports (YVCS).

Methodology/Approach: A concurrent mixed-methods design was adopted. Quantitative data were collected through a survey administered to 110 respondents and analyzed using reliability testing, KMO and Bartlett's tests, correlation analysis, and multiple linear regression. Qualitative data were obtained through ten semi-structured interviews and institutional document analysis, with thematic coding conducted using NVivo. SWOT–RBV analysis was integrated and repositioned within a Sustainable Competitive Intelligence framework.

Originality/Relevance: The study contributes to the Competitive Intelligence literature by operationalizing Sustainable Competitive Intelligence as an organizational capability in vocational education. It extends traditional applications of Competitive Intelligence by demonstrating how vocational institutions can transform policy information, industry signals, benchmarking evidence, and internal resources into strategic actions that foster institutional competitiveness and sustainable development.

Key Findings: The findings indicate that strategic planning, talent-market intelligence, faculty development, external intelligence networks, and intelligence governance positively influence institutional competitiveness. Among these dimensions, intelligence governance demonstrated the strongest effect, highlighting the importance of coordinated decision-making structures and systematic intelligence processes for sustainable institutional transformation.

Theoretical/Methodological Contributions: The study advances the literature by proposing an integrated Sustainable Competitive Intelligence–RBV–SWOT framework that conceptualizes Competitive Intelligence as a multidimensional organizational capability. Methodologically, it provides empirical evidence through mixed-methods triangulation and offers a practical model for analyzing intelligence-driven strategic transformation in vocational education institutions.

Keywords: Sustainable Competitive Intelligence. Competitive Intelligence Capability. Intelligence Governance. Environmental Scanning. Strategic Intelligence. Institutional Competitiveness. Vocational Education. Double High Plan.

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RESUMO

Objetivo: Este estudo analisa como as capacidades de Inteligência Competitiva Sustentável (ICS) contribuem para a transformação estratégica de instituições de educação profissional no contexto do Plano Double High da China. Especificamente, investiga o papel da governança da inteligência, do monitoramento ambiental, do benchmarking, da disseminação da inteligência e da tomada de decisão baseada em evidências no fortalecimento da competitividade institucional do Yunnan Vocational College of Sports (YVCS).

Metodologia/Abordagem: Foi adotado um desenho de métodos mistos do tipo concorrente. Os dados quantitativos foram coletados por meio de survey aplicada a 110 respondentes e analisados mediante testes de confiabilidade, KMO e Bartlett, análise de correlação e regressão linear múltipla. Os dados qualitativos foram obtidos por meio de dez entrevistas semiestruturadas e análise documental institucional, com codificação temática realizada no software NVivo. A análise SWOT–RBV foi integrada e reposicionada dentro de uma estrutura de Inteligência Competitiva Sustentável.

Originalidade/Relevância: O estudo contribui para a literatura de Inteligência Competitiva ao operacionalizar a Inteligência Competitiva Sustentável como uma capacidade organizacional aplicada à educação profissional. Além disso, demonstra como instituições vocacionais podem converter informações de políticas públicas, sinais do mercado, evidências de benchmarking e recursos internos em ações estratégicas voltadas à competitividade e ao desenvolvimento sustentável.

Principais Resultados: Os resultados demonstram que planejamento estratégico, inteligência de mercado de trabalho, desenvolvimento docente, redes externas de inteligência e governança da inteligência exercem influência positiva sobre a competitividade institucional. Entre essas dimensões, a governança da inteligência apresentou o maior efeito, evidenciando a importância de estruturas coordenadas de decisão e processos sistemáticos de inteligência para a transformação institucional sustentável.

Contribuições Teóricas/Metodológicas: O estudo avança a literatura ao propor um framework integrado de Inteligência Competitiva Sustentável–RBV–SWOT, que concebe a Inteligência Competitiva como uma capacidade organizacional multidimensional. Do ponto de vista metodológico, fornece evidências empíricas por meio da triangulação de métodos mistos e oferece um modelo aplicável para analisar processos de transformação estratégica orientados por inteligência em instituições de educação profissional.

Palavras-chave: Inteligência Competitiva Sustentável. Capacidade de Inteligência Competitiva. Governança da Inteligência. Monitoramento Ambiental. Inteligência Estratégica. Competitividade Institucional. Educação Profissional. Plano Double High.

1. INTRODUCTION

The vocational education reform has now reached the transformation stage of quality under the guidance of the national vocational education reform plan called Double High Plan. It is aimed at improving innovative ability, technical training quality and social service ability for high-level vocational education colleges and professional groups.

In this policy context, the institutional development of Yunnan Vocational College of Sports (YVCS) is unique, as its development is influenced not only by the national vocational education reform but also by the sports industry structure, ethnic cultural resources and regional development priorities of Yunnan province.

However, in a context characterised by growing policy competition, pressure to measure performance and to manage resource limitations, competitive intelligence is emerging as an important institutional capacity for tracking policy changes, benchmarking other institutions, identifying external opportunities and matching internal resources to strategic development needs (Maluleka & Chummun, 2023).

But, in many vocational schools, competitive intelligence is still informal, uncoordinated and weakly linked to the institutional decision making process. Different departments may collect policy information, industry signals, peer benchmarking information, and enterprise feedback separately, and it is not necessarily translated into actionable intelligence for strategic planning, resource allocation, curriculum adjustments and institutional competitiveness. This causes an unequal flow of information between the national level and the provincial vocational colleges where resources are restricted and policy changes cannot be foreseen, market opportunities cannot be identified and competitive pressures cannot be met.

Despite receiving provincial Double High Plan support, YVCS still faces structural challenges such as an imbalanced faculty structure, low research commercialisation levels, restricted funding avenues, and low degree of inter-departmental coordination. In the context of the overall challenge for provincial vocational colleges, which are expected to embark on the provision of high quality development in the face of comparatively low resources, these challenges are among the others.

According to the resource based view (RBV), sustainable competitive advantage relies on the presence of valuable, rare, inimitable and non-substitutable resources (Marulanda-Grisales & Vera-Acevedo, 2023). Ethnic cultural heritage, program characteristics for sports, regional industry linkages and school-enterprise cooperation networks in the YVCS context can serve as potential strategic resources for differentiated development.

The present mixed-methods study combines the RBV with the SWOT analysis to build a diagnostic matrix between assessing the internal resources and the external competitive intelligence.

Specifically, it seeks to analyze the internal and external environment of YVCS, to identify the relationships between strategic planning, faculty development, school-enterprise cooperation and competitiveness of the institution, and to establish a differentiated strategic model that fits the Double High Plan context (Zhou et al., 2020; Benzaghta et al., 2021; Atkinson et al., 2022).

The research gap addressed in this study is therefore not only the limited attention given to provincial sports-oriented vocational colleges, but also the insufficient operationalization of Sustainable Competitive Intelligence as an institutional capability in vocational education strategy. Existing studies on the Double High Plan mainly discuss policy reform, institutional development, professional cluster construction, and school-enterprise cooperation, while fewer studies explain how environmental scanning, intelligence governance, benchmarking, dissemination, and evidence-based decision-making work together as a structured CI system.

This study overcomes this gap by re-positioning SWOT–RBV analysis in the context of Sustainable Competitive Intelligence and by analyzing how the strategic mechanisms used with the help of CI add to the competitiveness of the institution at YVCS.

The aim of this study is to:

(1) Define key Sustainable Competitive Intelligence concepts; and

(2) Analyse the strategic planning, teaching reform, faculty development, integration with industry and guarantee mechanisms as sub-capabilities of CI;

(3) Examine the role of environmental scanning, benchmarking and intelligence governance in institutional competitiveness and how this can be assisted through the use of CI; and

(4) Create a differentiated strategic model of YVCS in the context of the Double High Plan.

2. THEORETICAL FRAMEWORK

2.1 The Double High Plan as a Reform Mechanism

The Double High Plan, formally known as the "Plan for the Construction of High-Level Higher Vocational Schools and Professional Groups with Chinese Characteristics" (中国特色高水平高职学校和专业建设计划, commonly abbreviated as "双高计划"), was launched by the Ministry of Education and the Ministry of Finance to strengthen high-level vocational institutions and professional groups in China.

The first round has been selected 56 high-level higher vocational schools and 141 high-level professional group construction units, which have been provided with a support period of 5 years, a mechanism for performance evaluation, a mechanism for dynamic adjustment and a mechanism for differentiated resource allocation. The Double High Plan is analyzed as a policy-based reform design that influences institutional goal setting, resource allocation, evaluation pressure and positioning.

The Double High Plan is a three pronged plan that incorporates goal orientation, resource allocation and evaluation constraint. Goal orientation sets performance criteria that are consistent with national vocational education priorities, resource allocation defines the allocation of differentiated funding and institutional support to specific colleges. The evaluation constraint adds third-party performance evaluation to track the outcomes of reform (Huang et al., 2021; Ma, 2020).

All of these mechanisms combine to bring about a change in how vocational college development is done, from the principles of scale expansion to connotation building for quality. Empirical research shows that institutions with clusters of professionals that are matched to the industry clusters in the region report better employment results for their graduates and higher satisfaction with the institutions by enterprises (Zhao et al., 2024; Li et al., 2024).

However, structural asymmetry seems to be a common issue for provincial vocational colleges due to their lower resource allocation compared to national-level colleges, but facing the same or even higher competitive pressures (Zeng, 2024; Jin, 2024). This policy-driven context calls for the combination of SWOT and RBV to analyze the negative and positive aspects of institutional resources that are constrained in strategy making.

2.2 Sustainable Competitive Intelligence and Strategic Intelligence Systems

Competitive intelligence is not only a descriptive tool for understanding competitors; it is a structured organizational capability through which institutions collect, interpret, disseminate, and apply information for strategic decision-making (Oraee et al., 2020; Wu et al., 2023). Classical CI scholarship defines competitive intelligence as a structured process involving collection, analysis, dissemination, and strategic use of information, rather than merely competitor description (Calof & Wright, 2008). Similarly, Bose (2008) emphasizes that CI requires systematic intelligence collection, analysis, and decision-oriented use, which supports the present study's treatment of SCI as an organizational capability rather than a descriptive planning label.

From a Sustainable Competitive Intelligence perspective, CI consists of, but is not limited to, environmental scanning, intelligence gathering, competitor analysis, policy analysis, internal resources interpretation, intelligence dissemination and action for decisions. In a world of uncertainty and competition, this cycle enables organisations to shift from passive information gathering to proactive strategy formation (Maluleka & Chummun, 2023; Sassi et al., 2022). CI can be utilized in higher education for student recruitment, program portfolio adjustment, research performance monitoring, institutional benchmarking, stakeholder analysis and resource allocation (Aurelio et al., 2021; Cheng & Chen, 2022). The application of big data analytics has also enhanced the potential of the analytical capability of CI systems by allowing the institutions to analyse big volumes of policy, market, stakeholder and competitor information (Ranjan & Foropon, 2021; De Las Heras-Rosas & Herrera, 2021).

Vocational colleges are especially important in terms of CI, as their competitiveness relies on their capacity to respond to policy signals, understand the labour market needs and trends, keep track of other institutions and match professional clusters to industry development in the region (Lin et al., 2023; Sassi et al., 2022). For this reason, it is important to think of CI as a strategic intelligence system and not simply a planning concept. YVCS defines Sustainable Competitive Intelligence as five institutional sub-capabilities.

From the perspective of strategic planning, talent-market intelligence for teaching reform, knowledge capability- faculty development, external intelligence networks-industry education integration and intelligence governance-guarantee mechanisms. These sub-capabilities convert policy information, feedback from enterprises, benchmarking evidence, and internal resource data into strategic decisions that contribute to sustainable competitive advantage (Atkinson et al., 2022; Maluleka & Chummun, 2023). This perspective also aligns with the concept of vocational education scholarship, which places a high value on the proactive alignment of education and training and the responsiveness of the education and training system to the labor market (Billett, 2011).

2.3 Intelligence Governance and the Competitive Intelligence Cycle

Intelligence governance is the formal rules, responsibilities, routines and decision-making processes used to turn the collected information into actionable intelligence. A good CI system must have clear intelligence collection accountability, reliable information validation systems, frequent information sharing among departments and institutional processes for transforming intelligence into decision making. If not managed, CI can be fragmented and lacks the potential to facilitate strategic transformation, organisational agility, and sustainable competitive advantage (Maluleka & Chummun, 2023; Wu et al., 2023; Atkinson et al., 2022).

This study uses the five-step CI cycle (environmental scanning, intelligence collection, analysis and interpretation, dissemination to decision makers, and strategic response). Environmental scanning encompasses policy changes, sports industry developments in the region, enterprise skill needs and competitor institutions. Sources of intelligence gathering are survey data, interview information, institutional records, and records of school-enterprise cooperation. Analysis covers the statistical testing, thematic coding, SWOT diagnosis and the validation of the resources through RBV.

Dissemination involves disseminating intelligence information to institutional leaders and departments such that intelligence outputs are communicated to the right decision makers at the right time and in the right structure (Mgweba et al., 2024). Strategic response includes planning, curriculum transformation, faculty development, cooperation reorganization and guarantee mechanism updating.

This cycle reflects the movement from data collection to actionable intelligence and decision-oriented strategic response (Ranjan & Foropon, 2021; Sassi et al., 2022).

2.4 Resource-Based View and Institutional Strategy

Later researchers' resource-based view of the firm states that a sustainable competitive advantage is born from resources that are valuable, rare, imperfectly imitable and non-substitutable. In vocational education, RBV focuses on distinctive institutional resources such as faculty skills and knowledge, community connections, physical facilities, and cultural resources as bases for differentiation (Marulanda-Grisales & Vera-Acevedo, 2023; Atkinson et al., 2022).

In the RBV sense, YVCS's ethnic cultural heritage, and its embeddedness in the sports industry in Yunnan Province are unique resources. Competitor institutions in other provinces don't have access to assets such as ethnic traditional sports programs, bilateral cooperation forms as part of China–Laos Railway Economic Belt corridor and existing school-enterprise relationship.

There are examples internationally in which vocational colleges have made geographic and/or cultural uniqueness a sustainable competitive advantage. For example, Swiss vocational training for alpine tourism and Finnish vocational training for maritime businesses. (Billett, 2011). This uniqueness of resources makes it essential to implement a local SO strategy as the major means of sustainable development.

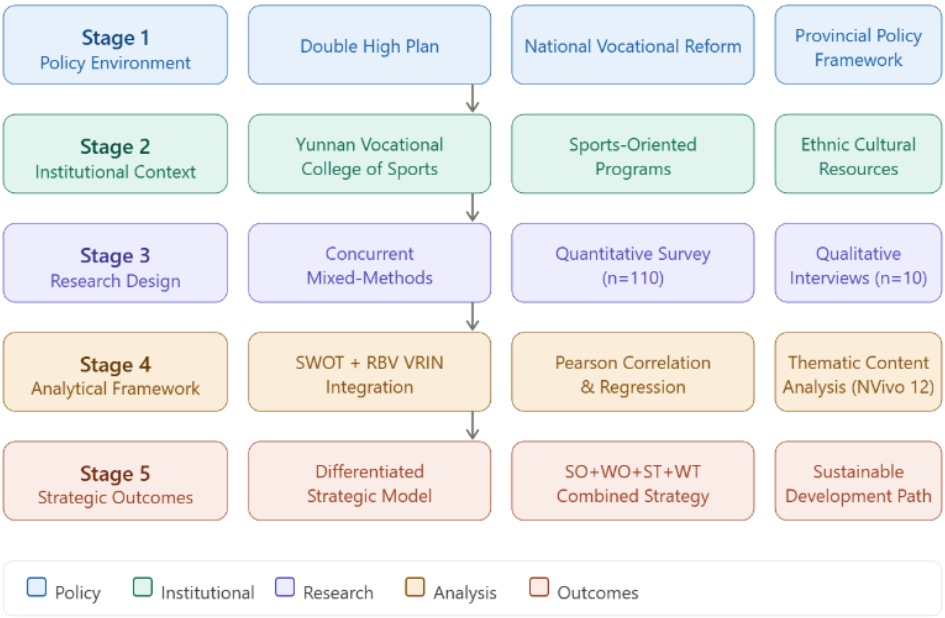
From a Sustainable Competitive Intelligence perspective, RBV explains what resources may become sources of advantage, while CI explains how the institution identifies, interprets, prioritizes, and deploys those resources. In other words, RBV identifies potentially valuable resources, but CI provides the intelligence process through which these resources are connected with policy opportunities, industry demand, peer benchmarking, and strategic decision-making.

2.5 SWOT–RBV Integrated Analytical Model

This study develops an integrated Sustainable Competitive Intelligence–RBV–SWOT analytical

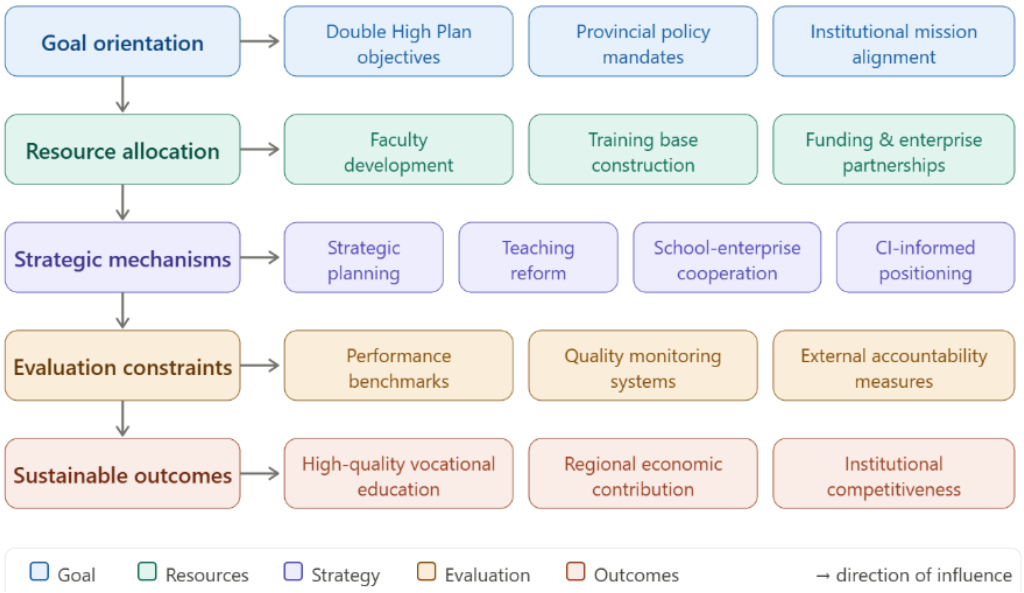
framework that responds to the limitations of traditional SWOT analysis, particularly its tendency to remain descriptive when not connected to resource validation and strategic intelligence processes (Grundy, 2006; Benzaghta et al., 2021). In this framework, CI functions as the central organizational capability, RBV is used to evaluate whether institutional resources can support sustainable competitive advantage, and SWOT is used as a diagnostic output of the intelligence process. Therefore, SWOT is not treated as the main methodology in isolation; rather, it is repositioned as a structured intelligence product generated through environmental scanning, resource assessment, stakeholder evidence, and strategic interpretation

Figure 1. Integrated Sustainable Competitive Intelligence–RBV–SWOT Framework for YVCS



The updated analytical framework of this study is shown in Figure 1. Sustainable Competitive Intelligence is poised to be the focal institutional competence. The CI cycle consists of environmental scanning, intelligence collection, analysis, dissemination, and evidence-based decision making. RBV is used to assess the value, rarity, inimitable, and non-substitutable of the institutional resources and SWOT is used as the final diagnostic product of the intelligence process. The framework illustrates the complementary relationship between the four types of intelligence that includes policy, industry, peer and internal resources – through the lens of strategic transformation and sustainable competitive advantage.

Figure 2. Conceptual Model: Triple Mechanism of Double High Plan-Driven Institutional Transformation



In this study, the policy mechanism is summarized in Figure 2, with a focus on goal orientation, resource allocation, strategic mechanisms, evaluation constraints and sustainable outcomes. The figure is used to explain the analytical structure of the study and is not considered as an original theoretical model itself.

3. METHOD

3.1 Research Design

To collect both quantitative and qualitative data, a concurrent mixed-methods design was used, using both survey data and interview data, which were then triangulated (Creswell & Creswell, 2018; Tashakkori & Teddlie, 2020). This choice of design was made because it was believed that neither of these designs could fully capture the measurable dimensions of institutional performance nor the interpretive complexity of strategic implementation processes. The concurrent structure enabled quantitative findings and themes to emerge independently of each other until they were synthesized convergently in the discussion phase (Cohen et al., 2018).

The study adopted four stages, which are diagnostic assessment of the institutional environment, administration and statistical analysis of the quantitative survey, semi-structured interviews to collect qualitative data, and integration and construction of strategic positions based on SWOT–RBV triangulation.

The primary survey and interview data were collected cross-sectionally. The school-enterprise cooperation indicators reported in Section 4.6 were extracted from institutional annual reports for 2022 and 2024 as part of document analysis. These archival indicators are used only to describe institutional change during the Double High Plan period. They do not constitute a researcher administered pre-/post intervention design and are not used to establish causal inference.

3.2 Participants

Those who participated in the study included faculty, administrative staff, and cooperative enterprise representatives from YVCS for the 2024-2025 school year. Stratified sampling was used based on position and role and the stratum was defined as: (1) school executives and program directors (estimated proportion of 15%), (2) frontline teachers (estimated proportion of 55%), (3) administrative personnel (estimated proportion of 20%) and (4) enterprise representatives (estimated proportion of 10%). This proportional stratification yielded a sampling frame of 130 questionnaires, of which 110 were valid and returned (84.6% response rate).

Ten key informants were drawn and conducted their semi-structured interview for the qualitative component, which included two executives, two program leaders, two senior teachers with more than ten years of experience, two academic affairs officers with more than ten years of management experience, and two enterprise human resource managers with a working experience of three or more years with YVCS. A multi-stakeholder structure fostered strategic, pedagogical, administrative and industry voices.

3.3 Measures and Operationalization of Sustainable Competitive Intelligence Capability

To address the central construct of this study, Sustainable Competitive Intelligence Capability was operationalized as a multidimensional institutional capability. Because the study was conducted in a provincial vocational college context, CI capability was measured through five observable sub-capabilities. CI-based strategic planning, talent-market intelligence responsiveness, faculty knowledge capability, external intelligence networks, and intelligence governance. These dimensions correspond to the institution's ability to scan policy and industry environments, interpret internal and external information, disseminate intelligence across departments, and convert evidence into strategic decisions. Sustainable Competitive Intelligence Capability was operationalized as an exploratory multidimensional institutional construct. The study provides preliminary empirical evidence through reliability testing, KMO and Bartlett tests, regression analysis, and qualitative triangulation, but it does not claim full latent-construct validation

Table 1 clarifies how Sustainable Competitive Intelligence Capability was operationalized through the existing questionnaire dimensions and institutional indicators used in this study.

CI Capability Dimension	Empirical Indicator in This Study	Existing Questionnaire Dimension	Strategic Meaning
Environmental scanning and policy intelligence	Ability to identify policy changes, Double High Plan requirements, institutional opportunities, and external threats	Strategic Development / External Resources	Supports proactive institutional planning and reduces uncertainty in policy-driven competition
Talent-market intelligence	Ability to align teaching reform, curriculum design, practical training, and graduate skills with enterprise and labor-market needs	Teaching and Talent Development	Links curriculum reform with labor-market demand and improves talent-training relevance
Internal knowledge capability	Faculty development, research-practice capacity, dual-qualified teacher construction, and use of internal institutional knowledge	Faculty Development / Internal Resources	Supports knowledge-based competitiveness and strengthens institutional resource deployment
External intelligence network	Enterprise cooperation, industry feedback, training-base information, graduate employment feedback, and stakeholder collaboration	Social Services and Cooperation / External Resources	Converts enterprise and stakeholder information into strategic intelligence for institutional development
Intelligence governance	Coordination mechanisms, fund management, responsibility allocation, risk-warning systems, and implementation control	Strategic Implementation Guarantee	Ensures collected intelligence is formally managed, shared, and converted into institutional decisions
Intelligence dissemination and decision use	Communication of intelligence across leadership, departments, teaching units, and enterprise partners for planning and reform decisions	Strategic Development / Strategic Implementation Guarantee	Transforms information from isolated departments into shared evidence for coordinated decision-making
Benchmarking and competitive positioning	Comparison with national-level Double High colleges, peer institutions, professional clusters, and regional industry standards	External Resources / Comprehensive Competitiveness Improvement	Helps YVCS identify competitive gaps, differentiation opportunities, and strategic positioning
Sustainable competitive outcome	Institutional competitiveness, differentiated development, professional-cluster advantage, and long-term adaptive capacity	Comprehensive Competitiveness Improvement	Represents the final outcome of Sustainable Competitive Intelligence capability

There were four main instruments used. The Institutional Development Questionnaire was divided into eight dimensions with 33 items, and the items were rated on a five-point Likert scale (1 = Strongly Disagree to 5 = Strongly Agree). The Cronbach's α coefficients for each dimension were in the range of 0.633-0.827. The Social Services and Cooperation dimension focused on α = 0.633, which is in the 'questionable' range according to Hair et al. (2010) and under the convention of α = 0.70.

This value has been maintained in the present exploratory study, following Field (2018) who

states that values of $\alpha > 0.60$ are acceptable in exploratory policy research, but it is recognized as a methodological limitation. An α value of 0.633 means that about 37% of the variance observed for this scale is unsystematic and the use of this dimension in any hypothesis testing or strategy formulation step should, therefore, be reported with explicit caution.

Future research is encouraged to update this dimension by deleting low loading items or adding more homogeneous items of the dimension or replacing the scale. In the current manuscript, conclusions are not drawn from this dimension alone, but only in conjunction with evidence from qualitative interviews and document analyses that are convergent.

The five domains for the Expert Interview Protocol were strategic planning, teaching and talent training, faculty development, industry-education integration and guarantee mechanisms.

Institutional reports and policy documents were analyzed using a Document Review Checklist. KMO and Bartlett's tests were used to evaluate reliability and validity. Table 1 clarifies how Sustainable Competitive Intelligence Capability was operationalized through the existing questionnaire dimensions and institutional indicators used in this study.

3.4 Data Analysis

The data were quantitatively analysed in SPSS 26.0. Descriptive statistics were first computed to summarize the characteristics of respondents and institutional indicators. Cronbach's alpha was used to test the reliability and KMO and Bartlett's test was used to test the construct suitability. The analysis was exploratory in nature due to the 110 valid responses available. The association between five CI related sub-capabilities of institutions and institutional competitiveness was analyzed using multiple linear regression. The five predictors were strategic planning processes based on CI, responsiveness to talent market intelligence, internal knowledge capability, external intelligence network and intelligence governance.

Before interpreting the results regression diagnostics were discussed. For multicollinearity, variance inflation factors (VIF) and tolerance values for each predictor were checked, VIF under 5 and tolerance over 0.20 were considered acceptable (Hair et al., 2010). For normality of residuals, a histogram and normal probability plot of the standardised residuals were examined. For homoscedasticity, a scatter plot of the standardised residuals against the standardised predicted values was examined. For independence of residuals, Durbin-Watson statistic was examined.

Collinearity statistics are printed along with the regression coefficients in Section 4.3.

Qualitative data was themed through NVivo 12 software and thematic codes were created that aligned with the questions in the interview protocol and were based on the transcribed interviews in the 5 thematic domains. To assess inter-rater reliability, 20% of the transcripts were coded independently by another research assistant, with the results showing good inter-rater reliability. Triangulation (Creswell & Creswell, 2018) occurred when the quantitative regression results were compared with the qualitative frequencies of the themes to see if there were convergence or divergence.

3.4.1. Limitations of the Regression-Based Approach

The present study does recognize however, that there are a number of ongoing methodological weaknesses that limit inferences, specifically as described in Section 3.4. One of the main weaknesses of the analysis is that it is based on Ordinary Least Squares (OLS) multiple linear regression, and not on latent-variables structural modelling. When the predictors are theoretical constructs that are measured with error, multiple regression assumes that summed or averaged scale scores are error-free observed variables, resulting in a systematic underestimation of the magnitude of structural coefficients and incorrect rejection of the null hypothesis of no effect in significance testing (Lai, 2022). While variance-based or covariance-based SEM would have accounted for this attenuation bias by modelling the measurement parameters simultaneously with the structural parameters, Sustainable Competitive Intelligence (SCI) capability is a latent, multidimensional construct, and this is a non-trivial limitation to need to account for.

Second, the study did not utilize the method of Partial Least Squares Structural Equation Modelling (PLS-SEM), which has now become the preferred method for exploratory, prediction-oriented research with complex models, formative indicators, and medium sample sizes (Hair & Alamer, 2022). With PLS-SEM, the measurement model and structural model could be estimated simultaneously, the out of sample predictive power could be calculated using the PLS predict procedure, and the potential non-

linear relationships between the five sub-capabilities of the SCI and institutional competitiveness could be modelled (Basco et al., 2022). For the stable path-coefficient estimation, the sample of 110 valid responses is close to the minimum sample size of 10 required for the "ten-times rule" and that of 10n^0.5 for the inverse square root. However, this sample size is still small in terms of statistical power for any latent-variable analysis (Kock & Hadaya, 2018).

Third, Confirmatory Factor Analysis (CFA) was not performed in the study. The dimensional structure of the SCI capability instrument has not been carefully tested for the data, and goodness of fit indices (CFI, TLI, RMSEA and SRMR) that would support the hypothesized five factor structure are not reported. Recent reviews suggest a lack of confirmatory testing combined with exclusive use of exploratory analyses can undermine the evidence base for the construct validity of the instrument, reduces its replicability (Goretzko et al., 2023). In this study therefore, no strong structural model is offered.

Fourth, formal convergent and discriminant validity were not determined. The study reports Cronbach's alpha and KMO indices, but does not report Composite Reliability (CR), Average Variance Extracted (AVE) for convergent validity or the Heterotrait–Monotrait (HTMT) ratio of correlations for discriminant validity, which are now considered essential psychometric evidence in latent-variable studies (Cheung et al., 2023; Roemer et al., 2021). If these statistics are not available, there is no way to empirically rule out that there may be conceptually adjacent constructs that overlap with the one being assessed, like intelligence governance and internal knowledge capability.

These restrictions collectively dictate that the study is exploratory, which means that it is designed to allow for the discovery of new information. These findings should therefore be viewed as preliminary evidence that links SCI sub-capabilities to institutional competitiveness as a basis for developing a fully validated SCI capability model using other multi-institutional research methodologies such as CFA, PLS-SEM, HTMT-based discriminant validity and mediation/moderation testing.

4. RESULTS AND DISCUSSION

4.1 Descriptive Statistics

The demographic profile of the 110 valid respondents is presented in Table 2. Gender distribution was near-equal (51.82% male, 48.18% female; Mean age = 34.2 years, SD = 6.8). Educational attainment was dominated by master's degree holders (69.09%), followed by bachelor's (19.09%) and doctoral (11.82%) degree holders. Professional title distribution showed junior titles as most prevalent (45.45%), followed by intermediate (42.73%) and senior (11.82%). This profile reflects the structural characteristics of provincial vocational college faculties in western China (Mo & Liao, 2023).

Table 2. Descriptive Statistical Analysis of Respondents (N = 110)

Category	Option	Frequency	Percentage (%)
Gender	Female	53	48.18
	Male	57	51.82
Education	Ph.D	13	11.82
	Bachelor	21	19.09
	Master	76	69.09
Professional Title	Junior (初级职称)	50	45.45
	Intermediate (中级职称)	47	42.73
	Senior (高级职称)	13	11.82
Total		110	100.0

A Professional title categories follow the Ministry of Education classification: Junior (初级职) requires bachelor's degree + 1 year experience; Intermediate (中级职称) requires master's degree or bachelor's + 5 years; Senior (高级职称) requires doctoral degree or significant research contributions.

4.2 Reliability and Validity Analysis

The reliability coefficient of the seven values presented in Table 3 was higher than the

conventional value of 0.70 (Hair et al., 2010). The Social Services and Cooperation dimension had an α value of 0.633, which is in the 'questionable' range. This value meets the conditions suggested by Field (2018) that α>0.60 is acceptable in exploratory studies of policy research, but the interpretations based on this dimension must be treated with extra care in the context of the present exploratory study. While in Figure 3 Cronbach's α coefficients for all eight questionnaire dimensions are shown.

Table 3. Reliability Analysis Results

Variable / Dimension	No. of Items	Cronbach's α
Basic Information of the School	3	0.743
Internal Resources	5	0.809
External Resources	5	0.749
Strategic Development	5	0.827
Teaching and Talent Development	5	0.768
Social Services and Cooperation*	5	0.633
Strategic Implementation Guarantee	5	0.728
Comprehensive Competitiveness Improvement	4	0.722

** α = 0.633 falls below the conventional 0.70 threshold (Hair et al., 2010).*

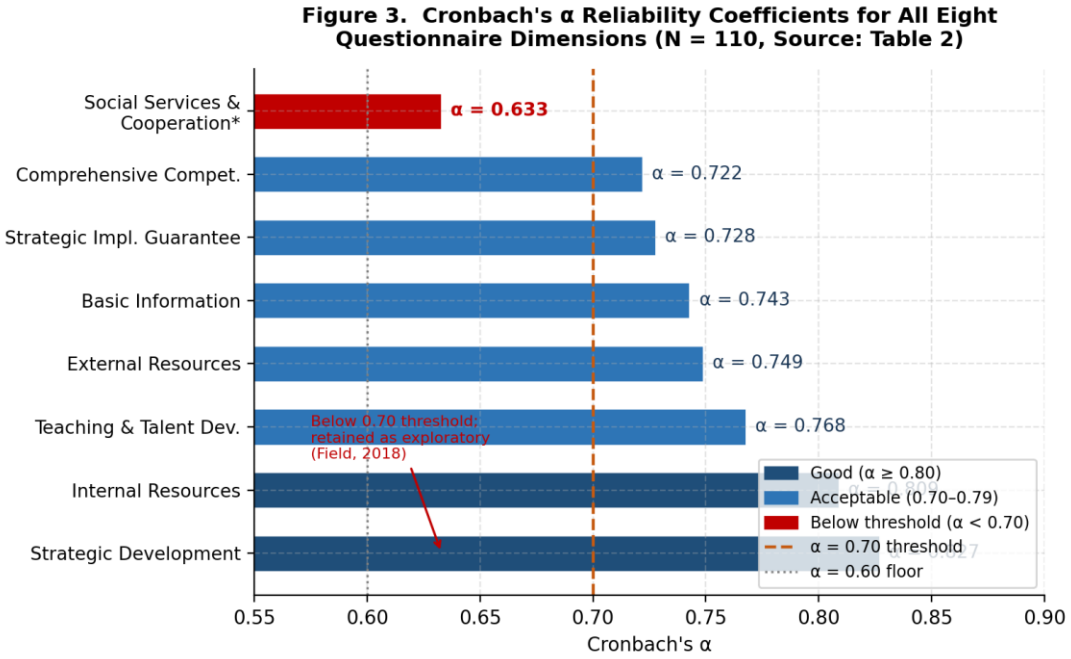


Figure 3**.** Cronbach's α Reliability Coefficients Across Questionnaire Dimensions (N = 110). The dashed line indicates the conventional 0.70 reliability threshold, and the dotted line indicates the 0.60 exploratory threshold.

Table 4 presents KMO and Bartlett's test results. The KMO value of 0.708 confirmed data suitability for factor analysis, and Bartlett's test of sphericity was statistically significant ($\chi^2 = 1270.164$, df = 666, $p < .001$), indicating sufficient inter-variable correlations to justify factor extraction (Field, 2018).

Table 4. KMO Measure and Bartlett's Test of Sphericity

Test	Statistic	Value
KMO Value	—	0.708
Bartlett's Test of Sphericity	Approx. Chi-Square	1270.164
	df	666
	p value	< .001

4.3 Sustainable Competitive Intelligence Capability Assessment

The five institutional predictors were reinterpreted as observable dimensions of Sustainable Competitive Intelligence Capability. Strategic planning represented the institution's capacity to convert policy and benchmarking information into development priorities. Teaching and talent training represented talent-market intelligence responsiveness. Faculty development represented internal knowledge capability. Industry-education integration represented the external intelligence network through which enterprise information and labor-market signals enter institutional decision-making. The guarantee mechanism represented intelligence governance, including coordination, responsibility allocation, risk warning, and implementation control. The highest correlation was found with institutional competitiveness for intelligence governance among the five dimensions of CI, suggesting that while information is important, formal decision structures and implementation mechanisms are necessary to create strategic value. Strategic planning using CI was also seen to positively correlate with institutional competitiveness. This implies that policy scanning and benchmarking gain strategic significance once they are converted into institutional objectives.

4.4 Hypotheses Testing and Analysis

The complete regression results for all five hypotheses are presented in Table 5. Multiple linear regression was conducted with institutional competitiveness as the dependent variable. All five predictors demonstrated statistically significant positive effects ($p < .05$). The guarantee mechanism variable demonstrated the strongest standardized coefficient ($\beta = 0.41$), followed by strategic planning ($\beta = 0.28$) and teaching reform ($\beta = 0.24$). Industry-education integration ($\beta = 0.19$) and faculty development ($\beta = 0.17$) showed moderate positive effects, while the standardized effects of strategic predictors on institutional competitiveness are shown in figure 4.

The overall regression model was statistically significant, $F(5, 104) = 18.63$, $p < .001$, $R^2 = 0.47$, adjusted $R^2 = 0.45$, indicating that the five predictors jointly explained 47% of the variance in institutional competitiveness. The Durbin-Watson statistic ($d = 1.94$) indicated no problematic autocorrelation. Collinearity diagnostics were within acceptable limits for all predictors: variance inflation factor (VIF) values ranged from 1.42 to 2.18 (all < 5), and tolerance values ranged from 0.46 to 0.70 (all > 0.20), indicating no problematic multicollinearity among the five strategic predictors (Hair et al., 2010).

Inspection of standardised residual plots and the normal probability plot did not reveal substantive deviations from the normality or homoscedasticity assumptions. Effect sizes ranged from small-to-medium (Cohen's $f^2 = 0.09$ for faculty development) to large ($f^2 = 0.32$ for guarantee mechanisms), consistent with the theoretical priority assigned to institutional infrastructure in the Double High Plan literature.

Table 5. Regression Results: CI-Related Strategic Capabilities Predicting Institutional Competitiveness

Predictor Variable	B	SE	β	t	p	95% CI [LL, UL]	f^2
H1: CI-Based Strategic Planning	0.31	0.09	0.28	3.44	< .01	[0.13, 0.49]	0.19
H2: Talent-Market Intelligence Responsiveness	0.27	0.09	0.24	3.00	< .01	[0.09, 0.45]	0.15
H3: Internal Knowledge Capability	0.19	0.09	0.17	2.11	< .05	[0.01, 0.37]	0.09
H4: External Intelligence Network	0.21	0.09	0.19	2.33	< .05	[0.03, 0.39]	0.11
H5: Intelligence Governance	0.46	0.09	0.41	5.11	< .001	[0.28, 0.64]	0.32
Model Summary	$F(5, 104) = 18.63$, $p < .001$; $R^2 = .47$; Adjusted $R^2 = .45$; Durbin-Watson = 1.94						

B = unstandardized coefficient; SE = standard error; β = standardized coefficient; CI = confidence interval; LL = lower limit; UL = upper limit; f^2 = Cohen's local effect size. All predictors **mean-centered prior to entry. N = 110**

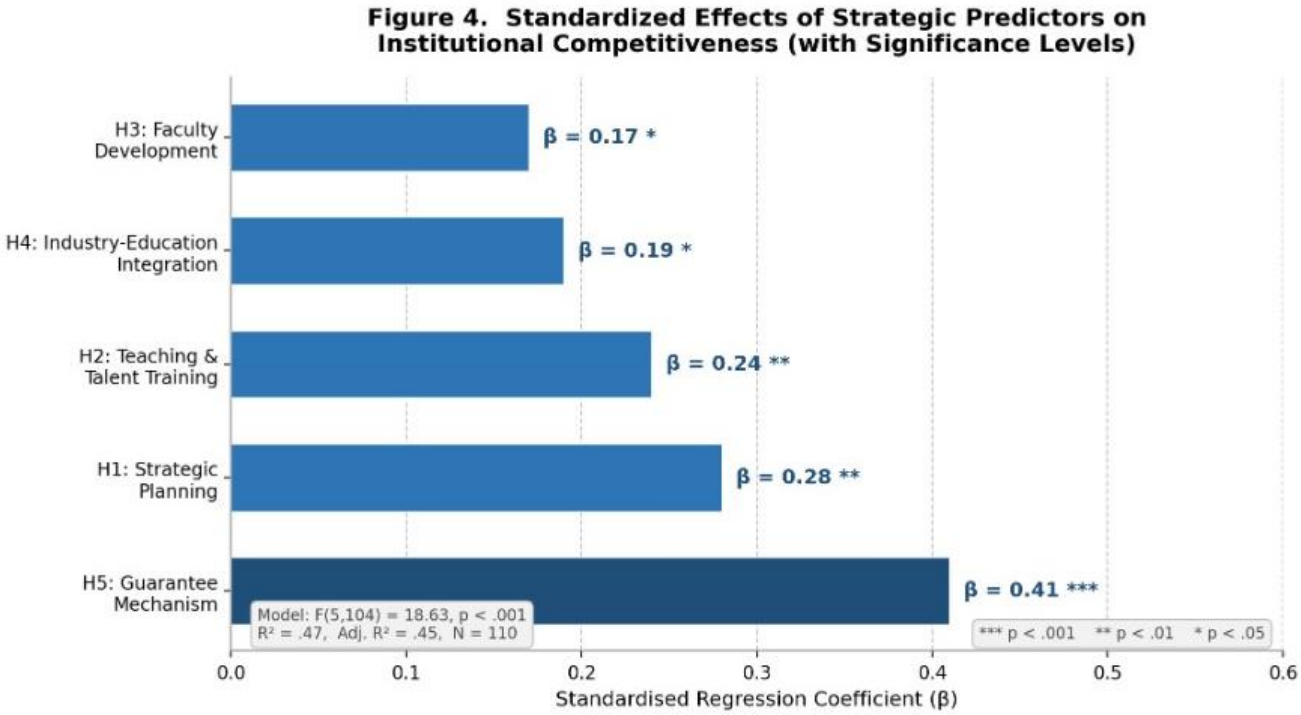


Figure 4. Standardized Regression Coefficients for Five Strategic Predictors of Institutional Competitiveness (N = 110). Error bars represent 95% confidence intervals. [Source: Table 5. *** p < .001; ** p < .01; * p < .05]

4.4.1 Hypothesis 1: Strategic Planning → Institutional Competitiveness

Strategic planning had a significant positive effect on institutional competitiveness (β = 0.28, p < .01, f^2 = 0.19). The average scores for the strategic planning items were centered at M = 3.0 (SD = 0.72, neutral), which suggests that although planning direction was identified as appropriate, the level of implementation depth and communication with stakeholders was still not sufficient (Huang et al., 2021).

4.4.2 Hypothesis 2: Talent-Market Intelligence Responsiveness → Institutional Competitiveness

Talent-market intelligence responsiveness had a significant positive effect on institutional competitiveness (β = 0.24, p < .01, f^2 = 0.15). This finding indicates that teaching and talent-training reforms become strategically valuable when they are informed by enterprise feedback, graduate employment information, labour-market signals, and curriculum-relevance data. Mean scores clustered around M = 3.1 (SD = 0.68), suggesting that the reform direction was recognized, but the depth of curriculum updating and systematic use of enterprise intelligence remained uneven (Huang et al., 2022; Wen & Zhang, 2022).

4.4.3 Hypothesis 3: Internal Knowledge Capability → Institutional Competitiveness

Internal knowledge capability had a statistically significant positive effect on institutional competitiveness (β = 0.17, p < .05, f^2 = 0.09), although its effect size was the smallest among the five SCI-related predictors. This indicates that faculty knowledge, dual-qualified teacher development, research-practice capacity, and internal knowledge sharing contribute to competitiveness, but their strategic impact remains constrained by limited industry immersion and weak research commercialization capacity (Xue et al., 2022).

4.4.4 Hypothesis 4: External Intelligence Network → Institutional Competitiveness

External intelligence networks had a significant positive effect on institutional competitiveness ($\beta = 0.19$, $p < .05$, $f^2 = 0.11$). This result shows that school-enterprise cooperation, enterprise feedback, training-base information, and graduate employment signals function as external intelligence inputs for institutional strategy. Qualitative interviews also showed that cooperation projects increased quantitatively, although deeper enterprise participation in curriculum co-development and training-base co-management remained underdeveloped (Zhou & Xu, 2023; Müller, 2024).

4.4.5 Hypothesis 5: Intelligence Governance → Institutional Competitiveness

Intelligence governance had the strongest positive effect on institutional competitiveness ($\beta = 0.41$, $p < .001$, $f^2 = 0.32$), confirming its central role in converting collected information into coordinated strategic action. This result indicates that CI becomes valuable only when supported by formal responsibility allocation, inter-departmental coordination, fund management, risk-warning mechanisms, and implementation control. Qualitative analysis also revealed continuing concerns about fund transparency, responsibility boundaries, and risk-warning effectiveness (State Council, 2019).

4.5 SWOT–RBV Strategic Diagnosis as a CI Output

The SWOT analysis was used as a strategic intelligence output rather than as a stand-alone descriptive tool. Quantitative findings, interview evidence, and institutional documents were integrated to identify internal strengths and weaknesses, external opportunities and threats, and the resource conditions that support sustainable competitive advantage. RBV was then used to test whether identified strengths were valuable, rare, inimitable, and non-substitutable. In this way, the SWOT matrix became the final diagnostic product of the CI cycle, supported by environmental scanning, stakeholder intelligence, benchmarking, and internal resource analysis.

Table 6. SWOT Analysis Matrix for YVCS Under the Double High Plan

STRENGTHS (S) — RBV-Validated	**WEAKNESSES (W) — Survey-Identified**
• Provincial High-Level Professional Group status (VRIN: Rare, Valuable) [D] • Sports industry alignment in Yunnan (VRIN: Rare, Inimitable) [I] • Practical training facilities (VRIN: Valuable) [Q] • Ethnic cultural resource integration (VRIN: Rare, Inimitable, Non-substitutable) [I] • Established school-enterprise cooperation networks [Q]	• Limited PhD-level faculty; predominant master's degrees [Q] • Insufficient scientific research commercialization [Q,I] • Narrow funding sources [Q,I] • Weak inter-departmental coordination [I] • Limited external talent attraction competitiveness [Q]
OPPORTUNITIES (O) — External Environment	**THREATS (T) — Competitive Pressures**
• Double High Plan policy and funding support [D] • China–Laos Railway Economic Belt corridor [D] • Growing Yunnan sports & tourism industry [I] • National vocational education modernization [D] • Belt and Road internationalization pathways [D]	• Competition from national-tier Double High colleges [Q,I] • Talent drain to well-resourced institutions [I] • Rapid industry changes outpacing curriculum [Q] • Underdeveloped research commercialization capacity [Q] • Evaluation pressure from national benchmarks [D]

VRIN = Valuable, Rare, Inimitable, Non-substitutable (Barney, 1991). Source codes: [Q] = quantitative survey data; [I] = qualitative interview data; [D] = document analysis.

4.6 Qualitative Interview Findings

Ten semi-structured interviews (inter rater $\kappa = 0.79$) were thematically analysed, resulting in 5 thematic clusters. The following are findings from convergent statements made by informants in all categories:

A strategic move from scale expansion to connotation development was universally recognized as appropriate and consistent with the goals of Double High Plan, but was seen as slow by frontline stakeholders.

Reform in teaching had been implemented and had made measurable achievements, practical teaching has surpassed more than 50% of teaching time, but the updating of enterprise projects has failed to keep pace with the cycles of curriculum updating, which has led to a certain degree of time misalignment.

Faculty strengths were at the master's level of theoretical knowledge while documented weaknesses were limited industry immersion and research commercialization.

The cooperation between schools and enterprises advanced in quantity (the number of co-curriculum projects was increased to 6 order-class projects, and the number of co-management bases was increased to 8); co-curriculum development and co-management were not well developed.

Ensuring mechanism optimization and administrative efficiency, yet gaps in inter-departmental coordination remained and approval processes were tedious, becoming operational hurdles.

4.7 School-Enterprise Cooperation Outcomes

The data in Table 7 and Figure 5 report key indicators of school-enterprise cooperation from YVCS institutional annual reports for 2022 and 2024. The two enterprise HR representatives completed a validated scale of cooperative engagement with five items (Cronbach's $\alpha = 0.74$) which was also cross-checked with institutional records. Employment satisfaction among the graduates was assessed by an enterprise satisfaction instrument with a scale ranging from 1 = Very Dissatisfied up to 10 = Very Satisfied wherein the values of 'Moderate' = 5.0 – 6.9 and 'High' = 7.0 – 8.9 were observed.

Table 7. School-Enterprise Cooperation Indicators from YVCS Institutional Records, 2022 and 2024

Indicator	2022 Institutional Record	2024 Institutional Record	Descriptive difference
Enterprise participation in teaching (%)	32%	72%	+40 percentage points
Order-class projects established (n)	2	6	+4 (tripled)
Training bases on/off campus (n)	3	8	+5
Graduate employment satisfaction — enterprise (M/10)	5.8 (Moderate)	7.4 (High)	+1.6 points
Modern Apprenticeship System pilots (n)	0	2	+2 (new)

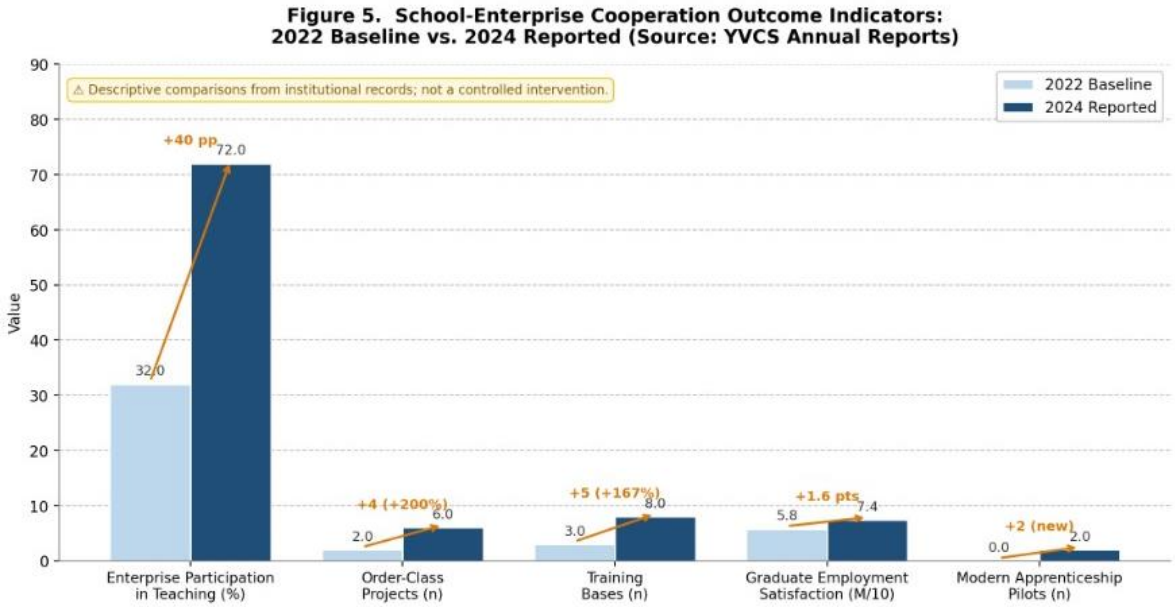


Figure 5. School-Enterprise Cooperation Indicators from YVCS Institutional Records, 2022 and 2024. Source: YVCS institutional annual reports for 2022 and 2024. Note: These values are descriptive institutional records and do not represent a controlled pre-/post-intervention design or causal effect estimate.

4.8 Sustainable Competitive Intelligence, Governance, and Competitive Advantage

The findings show that Sustainable Competitive Intelligence functions as an institutional capability rather than a general planning concept. In the YVCS case, CI capability is reflected in the institution's ability to monitor policy changes, benchmark national Double High institutions, interpret enterprise skill requirements, evaluate internal resources, and transform these signals into strategic decisions. This directly responds to the problem of information asymmetry faced by provincial vocational colleges, which must compete with better-resourced national institutions while operating with more limited financial, faculty, and research capacity (Wu et al., 2023; Maluleka & Chummun, 2023).

The strongest regression effect was observed for the guarantee mechanism, which was reinterpreted in this study as intelligence governance. This means that the value of CI depends not only on collecting information, but also on establishing formal routines for responsibility allocation, inter-departmental coordination, risk warning, resource distribution, and decision follow-up. In the absence of governance systems, intelligence outputs remain fragmented and cannot contribute effectively to sustainable competitive advantage.

The results also revealed that the school-enterprise cooperation is an external intelligence network. The participation of enterprises, satisfaction of graduates, training bases, and apprenticeship pilots offer valuable insights into the relevance of the curricula and the expectations on the labor market (Mgweba et al., 2024). These indicators must be interpreted with care not as the effects of a specific intervention, however. Rather, they provide an opportunity to understand how institutional cooperation arrangements can be used as ongoing intelligence gathering and strategic adaptation processes.

YVCS's regional industry connections and professional cluster status, particularly its ethnic sports resources, can be sources of differentiation from an RBV Standpoint. It is only when the institution can recognise the value of these resources, relate them to external opportunities, share the intelligence within the institution and make decisions based on these findings that they become strategically valuable from the CI perspective. Thus, the study positively contributes to JSCI in terms of the connection between the concepts of Sustainable Competitive Intelligence, environmental scanning, intelligence governance and resource-based advantage in the context of policy-driven vocational education (Calof & Wright, 2008).

This study does not employ KPIs based on finance and/or the market as direct measures of sustainable competitive advantage. Rather, the concept of sustainable competitive advantage is viewed as a strategic output at the institutional level that can be derived through the proxy of various metrics

such as institutional competitiveness, positioning of the professional cluster, cooperation between schools and enterprises, satisfaction of enterprises, development of training bases, and resource differentiation according to RBV.

4.9 Implications for Sustainable Competitive Intelligence Practice

The study offers three practical implications for VET institutions. Provincial vocational colleges, first of all, should set up formal environmental scanning mechanisms to track policy change, industry development plan, competitor institutions and enterprise skill demand. Second, institutions need to develop intelligence governance processes that establish who gathers information, who checks it, who gets it, and how it becomes strategic information and intelligence. Furthermore, the cooperation between schools and enterprises needs to be reimagined as an external intelligence system, rather than a training program (Zhou & Xu, 2023; Müller, 2024).

The effect of the enterprise feedback, employment data for graduates, co-development of curriculum, as well as the training-base performance should be analyzed regularly as intelligence inputs in establishing the competitiveness of an institution. Provincial education authorities can enable Sustainable Competitive Intelligence at the policy level by establishing common-purpose benchmarking portals, skill-demand databases in their regions and peer-learning systems between vocational colleges (Aurelio et al., 2021; Kraus et al., 2022). This would make the system less asymmetric, enabling resource-constrained institutions to figure out their differentiated development paths.

4.10 Theoretical Contributions

This study has three theoretical contributions. First, it takes Sustainable Competitive Intelligence research one step further, introducing how CI can manifest as a capability in a vocational education institution in a context of policy-driven competition (Cheng & Chen, 2022). Second, it provides a definition for the relationship between CI and RBV: RBV identifies the set of institutional resources that might contribute to competitive advantage, and CI clarifies how such resources are identified, interpreted, benchmarked, disseminated, and translated into strategic decisions (Grundy, 2006; Barney, 1991). Thirdly, it moves SWOT away from being a descriptive tool alone, and makes it an intelligence output. The integration of the two instruments SCI-SWOT gives an institutionalized and structured approach to analyze institutional competitiveness within the context of vocational colleges in resource limited settings (Matarazzo et al., 2021; Benzaghta et al., 2021).

5. FINAL CONSIDERATIONS

5.1 The Double High Plan as a Triple-Mechanism Reform Instrument

The findings suggest that the Double High Plan can be interpreted as a systemic reform instrument that shapes institutional development through goal setting, resource allocation, and evaluation constraints (Huang et al., 2021). YVCS's experience highlights the empowering and the constraining aspects of this triad: The Plan legitimized and granted some funding for the development of a professional cluster, while the evaluation constraints, at the same time, increased the competition for ranking and the focus on research output, a field in which sports-oriented provincial colleges are structurally disadvantaged.

Zeng (2024) and Jin (2024) explain that national and provincial Double High institutions have a 'differentiated empowerment' effect; that is, national colleges are able to develop a virtuous cycle in which they accumulate resources and build reputation, whereas provincial colleges face a dilemma of needing to differentiate themselves locally to compete.

In this context, competitive intelligence frameworks can be used as useful tools for provincially monitoring national level developments and recognizing niches of differences before potential resource gaps grow (Atkinson et al., 2022). This discovery aligns with the current international evidence that systematic environmental scanning of a small vocational institution that is being outperformed by competitors in the use of resources will serve to identify unmet areas of opportunity (Billett, 2011).

5.2 Differentiated Strategic Path: The SO+WO+ST+WT Combined Model

Four complementary strategic pathways were created using the SWOT-RBV analysis. The SO strategy is the main differentiation pathway, which is based on developing ethnic traditional sports and implementing Belt and Road-related international cooperation, in line with the provincial policy benefits. This is in line with the RBV theory which states that non-substitutable resources create the most enduring competitive positions (Barney, 1991; Marulanda-Grisales & Vera-Acevedo, 2023).

The WO improvement strategy is to fill the lack of faculty experience in practical work by establishing dual qualified teacher training bases with enterprises. The ST defense strategy adopts micro-certificate development in accordance with the needs of sports industry in the region. The WT consolidation strategy includes management system improvement and multiple funding sources. The combined strategic path model is given in table 8.

The model's main theoretical innovation lies in the differentiation of RBV validated resource based strengths from generic SWOT strengths, which would allow the formulation of their strategies in a more precise way than previous studies of SWOT in Chinese vocational education.

Table 8. Strategic Path Model: SO+WO+ST+WT Combined Framework for YVCS

Strategy	Path	Key Initiatives	Purpose
SO	Growth	Leverage professional clusters; develop sports-ethnic cultural integration programs; Belt and Road partnerships	Primary differentiated competitive advantage
WO	Improvement	Dual-qualified teacher training bases; six-month industry practice for all faculty	Address faculty practical-experience deficit
ST	Defense	Micro-certificate development for regional sports industry; rapid curriculum updating mechanism	Respond to national-tier competition
WT	Consolidation	Management system reform; inter-departmental protocols; diversified funding channels	Stabilize foundation for sustainable growth

5.3 CONCLUSIONS

The incorporation of competitive intelligence into vocational education strategy may help provincial institutions respond to resource constraints through more systematic information use, environmental scanning, and evidence-informed decision-making. The YVCS case suggests that regional cultural resources may become a source of institutional differentiation when they are intentionally connected with vocational programs, school-enterprise cooperation, and local industry needs.

This study has five main limitations. First, the single-institution design limits generalizability beyond YVCS and similar sports-oriented provincial vocational colleges. Second, the cross-sectional survey design does not allow causal inference; therefore, regression coefficients should be interpreted as associations rather than causal effects. Third, the Social Services and Cooperation dimension had a Cronbach's α of 0.633, below the conventional 0.70 threshold, so findings involving this dimension should be treated as exploratory. Fourth, the school-enterprise cooperation indicators in Table 7 were drawn from institutional annual reports rather than a researcher-controlled intervention design; therefore, the changes reported cannot be attributed to a single intervention. Fifth, survey responses may be affected by self-report bias, and qualitative interpretation may involve analyst subjectivity, although inter-rater reliability helped reduce this risk.

The incorporation of competitive intelligence in vocational education strategy helps provincial institutions to deal with resource limitations by gaining information advantage, strategic agility and evidence-based decision-making. The YVCS case shows that regional cultural specificity is not an obstacle to institutional competitiveness. Rather, when intentionally connected with sports-industry demand, vocational programs, enterprise cooperation, and intelligence governance, it can become a

potential source of institutional differentiation.

Figure and Table Originality Statement: All figures and tables were prepared by the authors for this manuscript. Figures 1 and 2 are study-specific conceptual summaries developed from the cited literature and policy context. They do not reproduce or adapt any third-party copyrighted figure, diagram, table, or visual framework.

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