Aligning Vocational Training Systems with the Gig Economy and Digital Job Markets Through Training Needs Analysis (TNA): Case Study of BBPVP Bandung

Fery Muhamad Nugraha[1], Muhammad Yorga Permana[2]
[1]Master of Business Administration, School of Business and Management, Institut Teknologi Bandung, Jl. Ganesha No. 10, Bandung 40132, Indonesia, 29123325@mahasiswa.itb.ac.id
[2]Master of Business Administration, School of Business and Management, Institut Teknologi Bandung, Jl. Ganesha No. 10, Bandung 40132, Indonesia, yorga.permana@sbm-itb.ac.id

Corresponding author: 29123325@mahasiswa.itb.ac.id

Abstrack: The transformation of Indonesia's labor market, driven by the rise of the digital economy and gig-based work, requires a responsive vocational training system that equips graduates with relevant and future-ready competencies. BBPVP Bandung, as a public vocational training center, faces challenges in aligning its traditional programs with the demands of flexible, platform-based employment. This study explores how Training Needs Analysis (TNA) can be used as a strategic tool to identify job market trends, develop competency frameworks, and guide program delivery to bridge this gap. Through a qualitative research approach, the study gathered insights from industry professionals, gig & digital talents, and institutional leaders via interviews and focus group discussions. Using the Gioia method for analysis, the findings were synthesized into key strategic themes that address emerging job trends, the types of competencies required, and effective training delivery models for the digital era. The study concludes that BBPVP Bandung should prioritize developing talent in three key digital roles: Digital Marketing Specialists, Social Media Specialists, and Graphic Designers. An integrated competency model combining technical, soft, and entrepreneurial competencies was formulated to ensure holistic graduate preparedness. Furthermore, an End-to-End Gig-Oriented Vocational Delivery System is proposed, encompassing early industry collaboration, modular and micro-credential learning, and post-graduation mentoring and support. Embedding TNA as a continuous planning mechanism will enable BBPVP Bandung to sustain relevance, strengthen graduate employability, and contribute to broader vocational education transformation in Indonesia.

Keywords: training needs analysis, vocational education, gig economy, digital job markets, curriculum transformation, competency framework, BBPVP Bandung

INTRODUCTION

The gig economy and rapid digital transformation are reshaping workforce dynamics worldwide. Digital platforms such as Upwork, Fiverr, and Grab have fueled a shift towards short-term, project-based employment, emphasizing flexibility and redefining the essential

skills needed for success (Kalleberg & Dunn, 2016). This shift requires vocational graduates to develop competencies in digital literacy, problem-solving, and platform-based freelancing to remain competitive in evolving job markets (McKinsey Global Institute, 2017). The World Economic Forum (2020) predicts that by 2025, half of the global workforce will require reskilling due to automation and evolving employment structures.

In Indonesia, the digital economy is projected to contribute approximately USD 146 billion by 2025, driving a surge in demand for digitally skilled professionals (Google, Temasek, & Bain & Company, 2020). According to a 2023 report by Statista, the number of job postings on freelancer platforms such as Upwork, Freelancer, Sribulancer, and Projects.co.id has increased by 40% from 2019 to 2023, reflecting the growing need for digital workers (Statista, 2023). Additionally, a 2023 report by the Indonesian Ministry of Manpower revealed that digital job market positions expanded by 37% over the past five years, highlighting the increasing demand for vocational graduates with relevant digital skills (Kementerian Ketenagakerjaan, 2023).

As a government vocational training center, BBPVP Bandung plays a crucial role in preparing Indonesia's workforce for emerging job markets. BBPVP Bandung currently offers ICT-related training; however, these programs are not fully aligned with the demands of the rapidly growing gig economy and digital job market. Industry feedback indicates that graduates often lack critical competencies required in gig and digital work environments. Many existing training programs lack direct connections to gig economy opportunities on platforms like Upwork, Sribulancer, Freelancer, and Projects.co.id, where specialized digital skills are in high demand. According to the Kios SIAPkerja report from BBPVP Bandung, the placement rate for ICT graduates is only 42%, as industries increasingly prioritize gig workers in digital roles over traditional employment models. Furthermore, ICT vocational training has not yet integrated gig worker platforms into its training programs, further limiting graduates' ability to enter digital freelancing and flexible employment markets.

In the evolving landscape of digital freelancing and flexible employment, platforms like Upwork have highlighted several high-demand skills sets for 2025 that are essential for success in the gig economy (Upwork, 2025). These digital skills are essential not only for freelancers but also for small business owners looking to expand their digital presence. The supply side of entrepreneurship presents further opportunities for vocational graduates, as digital skills empower them to start online businesses, sell products through e-commerce platforms, or provide specialized services remotely.

Although BBPVP Bandung has made efforts to modernize its curriculum, gaps persist due to insufficient integration of digital tools, industry collaborations, and exposure to real-world digital work scenarios. Consequently, graduates struggle to compete in freelance markets and flexible employment models. With rising demand for IT professionals, digital freelancers, and e-commerce specialists, BBPVP Bandung as a vocational institution must align its training systems to match industry needs.

The urgency to align its vocational training systems with the gig economy and digital market is critical, as the demand for digital skills continues to rise. As a government vocational training center, BBPVP Bandung must take proactive steps to ensure its graduates have the competencies required to thrive in digital freelancing, flexible employment, and entrepreneurship in the digital age.

This study focuses on utilizing a structured training needs analysis (TNA) approach to effectively align vocational training systems with the gig economy and digital job markets. To ensure vocational training aligns with industry needs and the evolving job market, BBPVP Bandung must focus on three key areas:
1. Use TNA to assess labor market shifts and industry demands for relevant vocational training.

2. Define key skills for gig and digital jobs based on industry input to create structured training.
3. Implement effective program delivery to prepare graduates for the workforce.

By integrating these areas, BBPVP Bandung can transform into a digitally adaptive vocational training center. This approach ensures that its vocational training systems align with the gig economy and digital job markets.

METHOD

Balai Besar Pelatihan Vokasi dan Produktivitas (BBPVP) Bandung is a government-operated vocational training institution under the Ministry of Manpower of Indonesia. As a Unit Pelaksana Teknis Pusat (UPTP), BBPVP Bandung is responsible for conducting vocational training and productivity enhancement programs, improving the competencies of instructors and training personnel, competency certification, and testing vocational training programs, systems, and methods. Additionally, the institution provides consultancy services and develops strategic partnerships in vocational education and productivity.

This research adopts a qualitative methodology, leveraging interview-based coding and thematic analysis to explore how the Training Needs Analysis (TNA) process can be applied to improve the vocational training system at BBPVP Bandung in response to the evolving demands of the gig economy and digital job market. The study addresses both "what" and "how" questions to uncover key job market trends, define required industry competencies, and inform the design of training programs that equip learners with relevant, applicable skills. It also seeks to determine how TNA can inform the structure and implementation of vocational training programs. Rather than merely testing existing frameworks, the research remains open to emergent insights from the field, ensuring that its conclusions are grounded in data and responsive to labor market dynamics (Gioia et al., 2013).

RESULT AND DISCUSSION

Aggregate Dimensions

The third and final phase of the Gioia coding process involved synthesizing the second-order themes into higher-order aggregate dimensions. These dimensions serve as conceptual groupings that capture the strategic implications of the data. Rather than focusing solely on observed patterns, this stage of analysis advances toward abstraction, producing a set of strategic focus areas that reflect how vocational training institutions, such as BBPVP Bandung, can effectively align their programs with the realities of the digital labor market and gig-based employment models.

This transformation, from granular, participant-centered observations to broader organizational insight, was guided by the three central research questions. Each aggregate dimension integrates multiple second-order themes that emerged from the empirical coding process and collectively forms a conceptual framework for reforming vocational training in response to the demands of the modern workforce.
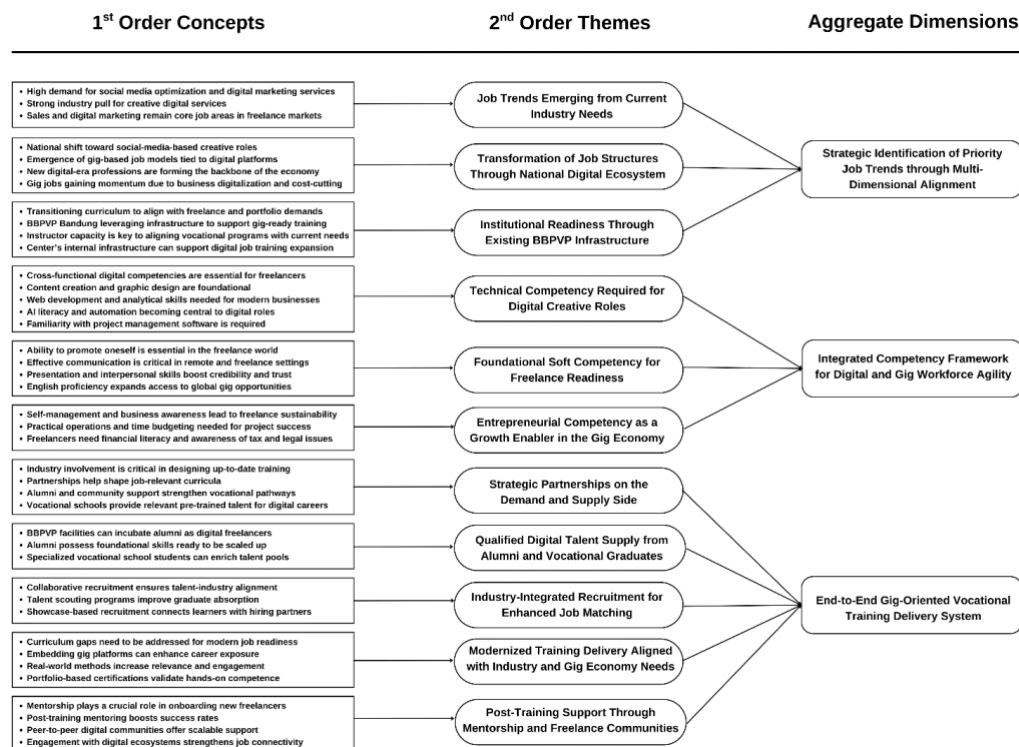
1st Order Concepts	2nd Order Themes	Aggregate Dimensions

Figure 1. Aggregate Dimensions (Final Theoretical Themes)

This figure illustrates how first-order participant concepts were grouped into second-order themes, which were then abstracted into three key aggregate dimensions:

a. Strategic Identification of Priority Job Trends through Multi-Dimensional Alignment,
b. Integrated Competency Framework for Digital and Gig Workforce Agility, and
c. End-to-End Gig-Oriented Vocational Training Delivery System.

These three aggregate dimensions represent the strategic pillars through which BBPVP Bandung, and similar vocational institutions, can revitalize their training systems in light of the evolving digital ecosystem. By following the structured progression from first-order concepts to theoretical constructs, the study articulates how digital workforce preparedness can be improved through deliberate alignment with industry trends, the development of dynamic and entrepreneurial competencies, and the integration of innovative delivery mechanisms.

In particular, the findings highlight the urgency of embedding digital skills and freelance readiness into curricula, fostering cross-sector collaboration for program co-design, and developing sustainable training-to-placement pipelines tailored for the gig economy. This framework not only reflects empirical realities but also provides a practical roadmap for institutions aiming to future-proof their workforce development strategies.

Iterative Comparison and Data Structure Development

Following the Gioia Methodology, the development of this study's theoretical model adopted an iterative and dynamic approach. Rather than proceeding in a straight linear sequence, the analysis was structured through repeated cycles of data examination, reflection, refinement, and theoretical comparison. Each stage, from the identification of first-order participant expressions to the abstraction into second-order themes and final aggregation into overarching dimensions, was continuously revisited to ensure rigor, relevance, and empirical integrity.

The iterative cycles also integrated insights from external benchmarks and best practices, ensuring that the evolving model was not only grounded in participant realities but also aligned with external market shifts and global vocational innovations. In doing so, the

analysis remained adaptive, systematically incorporating emerging insights while preserving conceptual consistency.

1. Strategic Prioritization of Job Trends Through Multi-Dimensional Alignment

The first aggregate dimension, Strategic Identification of Priority Job Trends through Multi-Dimensional Alignment, was established through a layered validation process. Initially, first-order concepts such as high demand for digital services, the national shift toward social-media-driven roles, and existing BBPVP digital resources surfaced from interviews and FGDs. These observations were synthesized into second-order themes reflecting industry-driven job trends, ecosystem-driven transformations, and institutional readiness for digital adaptation. However, the early identification of a broad range of job opportunities necessitated a deeper strategic focus. Therefore, an iterative comparison was employed, aligning:

a. Industry Hiring Trends (Real-world platform data): Analysis of freelance job platforms like Upwork, Fiverr, and Sribulancer shows consistent demand for digital roles, especially in digital marketing, social media management, and graphic design. According to Upwork's 2025 Most In-Demand Skills report, "Social Media Marketing" and "SEO" are listed among the top 10 most in-demand skills in the Sales & Marketing category, while "Graphic Design" remains a leading skill in the Design & Creative category (Upwork, 2025). This trend is in line with respondent R11's comment: "Many SMEs are now looking for services to optimize their social media and create digital marketing content. Digital content creation, graphic design, and marketing are our top services requested by clients.".

b. National Ecosystem Priorities (Government-led digitalization movements): National programs aimed at accelerating digital transformation have emphasized the growing need for roles such as social media specialists, graphic designers, digital marketers, and tech-based service providers, aligning workforce development with strategic economic objectives. A 2023 report by the Indonesian Ministry of Manpower revealed that digital job market positions grew by 37% over the past five years, underscoring the rising demand for vocational graduates with relevant digital skills (Kementerian Ketenagakerjaan, 2023). This aligns with respondent R3's statement: "The demand for graphic design and digital content creation is increasing, especially through social media platforms. Trends like programming, content writing, and digital marketing are emerging as future-proof careers.".

c. BBPVP Bandung's available training capacities and infrastructure: Internal mapping shows that BBPVP Bandung already has the necessary infrastructure and qualified instructors to support training in digital creative fields, making it feasible to prioritize roles like digital marketers, social media specialists, and graphic designers. This is in line with respondent R9's remark: "Our IT department is already shifting to support creative digital programs. Our facilities are in place to explore relevant job opportunities.".

Concentrating on these roles: Digital Marketing Specialist, Social Media Specialist and Graphic Designer enables BBPVP Bandung to maximize institutional strengths, align training outputs with real market opportunities, and provide graduates with a practical pathway toward sustainable employability in the evolving gig economy.

2. Development of an Integrated Competency Framework for Digital and Gig Economy Agility

The iterative coding process, grounded in participant insights, external benchmarking, and successive thematic abstraction, highlighted the necessity for BBPVP Bandung to develop an integrated competency framework to prepare graduates for the prioritized digital roles of digital marketing specialists, social media specialists, and graphic

designers. Through continuous data examination and comparison with international models like Malaysia's TVET system, it became clear that technical, soft, and entrepreneurial competency must be cohesively developed to meet the demands of the modern gig economy.

a. Technical Competency: Technical competency, defined as the specific knowledge and skills required to carry out professional tasks effectively, is especially vital in digital and gig-based careers where output quality directly impacts client trust and job continuity (Mitchell et al., 2010). The second-order theme "Technical Competency Required for Digital Creative Roles" was developed from first-order insights that emphasized the growing need for specialized expertise in digital content creation, marketing, and design. Industry validation via TVET Malaysia confirmed that job-readiness hinges on mastery of role-specific tools and platforms. For digital marketers, key competencies include data-driven campaign execution, SEO strategies, and familiarity with tools like Google Ads or Meta Business Suite. Social media specialists must be adept at content scheduling, performance analytics, and platform-specific engagement tactics. Graphic designers, on the other hand, are expected to demonstrate technical fluency in software such as Adobe Creative Suite and produce visual content consistently. These capabilities form the foundation for producing professional-grade outputs aligned with industry expectations. This aligns with respondent R11's comment: *"The media-related skillsets must cover digital marketing, data analytics, and meta-apps."*.

b. Soft Competency: In the context of gig and digital work, soft competency refers to a set of non-technical competency such as communication, collaboration, and adaptability that support effective performance in dynamic, often remote, environments (Wickramasinghe & Perera, 2010). The theme "Foundational Soft Competency for Freelance Readiness" emerged through second-order coding, emphasizing the need for autonomy and digital teamwork. Validation sessions, aligned with TVET Malaysia's direction on embedding workplace soft competency, highlighted distinctive expectations per role: digital marketers and social media specialists must manage client interactions, and adapt to diverse brand tones; graphic designers must interpret briefs with precision and pitch creative concepts confidently. In addition, cross-cutting soft competencies such as personal branding, client communication, and English proficiency are increasingly essential across all three roles, marking a clear shift in industry expectations. This reflects the input of respondents, R12 noted, "Personal branding is crucial, without it, it's difficult to get clients";R10 emphasized, "Communication skills must be trained, especially for remote work and presenting project results"; and R6 added, "Language skills, especially English, are required when targeting international clients.".

c. Entrepreneurial Competency: Entrepreneurial competency refers to the set of knowledge, skills, and personal attributes that enable individuals to identify opportunities, take initiative, manage uncertainty, and sustain independent business activities, especially relevant in freelance and platform-based work (Man, Lau, & Chan, 2002). This informed the second-order theme "Entrepreneurial Competency as a Growth Enabler in the Gig Economy." Participant responses consistently highlighted entrepreneurial skills as critical for success in self-managed digital careers. In roles such as digital marketing, social media, and graphic design, key competencies include project manajement, business proposal development, legal and contract management, and time and financial management. External validation through Malaysia's dual-system training further emphasized that freelancers must operate like micro-enterprises to remain competitive. This is reflected in respondent insights, R12 shared, "Successful freelancers are those who can manage their own projects and understand business

dynamics"; R11 noted, "Time management, budgeting, and use of productivity tools are vital in freelance workflows"; and R6 added, "Freelancers must prepare proposals and understand basic financial and legal principles."

To clarify the integrated competency requirements for each prioritized job role, Table 9 maps the technical, soft, and entrepreneurial competency essential for digital marketing specialists, social media specialists, and graphic designers.

Table 1. Competency Mapping for Priority Digital Job Roles

	Digital Marketing Specialist	Social Media Specialist	Graphic Designer
Technical Competency	- Data-driven Campaign - SEO Strategies - Google Ads and Meta Business Suite	-Content Scheduling and Calendar Management -Social Media Performance Analytics -Engagement Optimization	- Adobe Creative Suite - Visual Content Production
Soft Competency	- Personal Branding - Client Communication - Basic English for Business		
	- Client Relationship Management - Brand Tone Adaptability		-Brief Interpretation Accuracy - Creative Concept Pitching
Entrepreneurial Competency	- Project Management - Legal and Contract Negotiation - Time and Financial Management - Business Proposal Management		

3. Constructing an End-to-End Gig-Oriented Vocational Delivery System

The third aggregate dimension emerged from continuous synthesis of internal focus group discussions (FGDs), in-depth participant interviews, and benchmarking of selected external vocational models. Although the external case studies provided minimal direct spillover content, they served as important validation points to confirm the feasibility and scalability of gig-integrated practices. Through this iterative process, five strategic components were identified as essential to building a modern, responsive vocational ecosystem that prepares BBPVP Bandung graduates for sustainable careers in digital and freelance sectors as follow:

a. Industry & Platform Partnership

BBPVP Bandung stakeholders underscored the importance of formal collaboration with digital work platforms such as Upwork and Sribulancer to ensure training remains aligned with real-time industry needs. This aligns with global practices observed in programs like Singapore's SkillsFuture and Korea's K-Move, where partnerships help synchronize training with evolving job market demands. These collaborations act as a bridge between vocational learning and employment, keeping the curriculum responsive and enhancing graduates' access to freelance opportunities. This is in line with respondent R10's statement: "Partnering with companies ensures we respond to current digital trends and real demands.".

b. Talent Supply Creation

Focus group discussions and alumni input highlighted the value of building talent pipelines through feeder vocational high schools and alumni networks. This strategy echoes Germany's dual education system, which emphasizes early engagement with

schools to develop a continuous supply of qualified learners. By formalizing these pathways, BBPVP Bandung can ensure a steady intake of digitally aware trainees and reinforce the long-term sustainability of its vocational programs. This aligns with respondent R3's statement: "We can connect with vocational schools that already have basic foundations in design or digital to feed into BBPVP programs.".

c. Collaborative Recruitment & Talent Scouting

Participants advocated for co-managed recruitment and internship efforts in partnership with industry actors to better match graduates with job opportunities. This mirrors successful models like Japan's Hello Work and South Korea's HRD-Korea, where public-private collaboration enhances job placement accuracy. Integrating this component enables BBPVP Bandung to improve employability outcomes by aligning talent development more closely with employer needs. This is in line with respondent R11's statement: "It's better if recruitment is conducted together with industry partners to make it more targeted.".

d. Modernized & Flexible Training

Stakeholders expressed strong support for modular, project-based, and micro-credential learning formats to replace rigid traditional structures. This approach is consistent with international best practices such as the UK's City & Guilds system and Coursera's nano-degree model, both of which prioritize flexible, skill-based training. Such a shift empowers learners to upskill continuously while building portfolios that reflect current industry standards. This aligns with respondent R6's statement: "Project-based training, case studies, and real-world simulations should be included.".

e. Post-Training Support through Mentorship

Alumni insights emphasized the need for structured post-training support, including mentorship, peer networks, and access to freelance communities. Comparable initiatives in Australia's TAFE system and Indonesia's Prakerja program show the value of ongoing career guidance in sustaining long-term success. Incorporating this component ensures BBPVP Bandung graduates receive the support needed to confidently navigate freelance platforms and remain competitive in the digital economy. This is echoed by respondent R11's statement: "I had a mentor who guided me through my first freelance project, this really helped.".

By embedding these five pillars into its delivery model, BBPVP Bandung can transition from conventional training into a forward-looking, employment-activated vocational system. This integrated approach ensures learners are not only equipped with relevant skills but also empowered to thrive throughout their freelance and digital careers.

Synthesizing Insights into Actionable Recommendations

Accordingly, the actionable insights synthesized from this analysis are structured around these three core strategic pillars:

1. Strategic Prioritization of Job Trends: Focusing on Key Digital Roles

Aligned with the first aggregate dimension, BBPVP Bandung must prioritize its vocational focus on the three digital roles identified through iterative triangulation: digital marketing specialists, social media specialists, and graphic designers.

The convergence of industry demands, national digital priorities, and BBPVP Bandung's resource readiness underscores the necessity of concentrating efforts on these high-potential areas. Actionable recommendations include:

a. Designing targeted training pathways for these three roles, with customized curricula and skill development modules.

b. Regularly updating job trend analyses to ensure the selected roles remain aligned with market evolutions.

c. Allocating institutional resources efficiently to support program excellence in these prioritized fields.

Focusing on these roles enables BBPVP Bandung to maximize internal capabilities, remain industry-relevant, and deliver sustainable career pathways for graduates in the freelance and digital workforce.

2. Integrated Competency Framework: Building Holistic Digital Employability

Consistent with the second aggregate dimension, the study emphasizes the construction of an integrated competency framework that combines technical, soft, and entrepreneurial competency. Derived from participant coding, expert validation, and global benchmarking, the essential recommendations are:

a. Strengthen technical competency relevant to each role, such as SEO and campaign tools for digital marketers, analytics and scheduling platforms for social media specialists, and Adobe Creative Suite for graphic designers.

b. Reinforce soft competency including client communication and adaptability, critical for marketers and social media roles, and design presentation and brief interpretation for graphic designers, alongside shared competencies like remote collaboration and English proficiency.

c. Cultivate entrepreneurial competency across all roles, including financial management, client negotiation, and the ability to navigate freelance platforms effectively.

d. Incorporating industry-recognized certifications within the training modules will provide graduates with formal validation of their competencies, enhancing their credibility in competitive freelance marketplaces.

This competency model ensures that BBPVP Bandung's graduates are not only technically proficient but also professionally versatile and resilient in the evolving gig economy.

3. End-to-End Vocational Delivery System: Creating Seamless Workforce Pipelines

Reflecting the third aggregate dimension, BBPVP Bandung must establish a comprehensive vocational ecosystem that spans from training initiation to post-graduation career support. Strategic actions include:

a. Forging early partnerships with industries, digital platforms, and talent communities to align curriculum with real-world demands.

b. Building talent pipelines through collaboration with alumni networks and vocational feeder schools.

c. Implementing collaborative recruitment strategies in partnership with industry stakeholders.

d. Modernizing training delivery through modular learning, project-based assessments, and portfolio development.

e. Providing post-training support through structured mentorship programs, digital freelance community engagement, and career advisory services.

By constructing this end-to-end system, BBPVP Bandung can ensure that graduates not only acquire competency but are effectively transitioned into sustainable freelance careers, supported by ongoing development opportunities.

Through the structured iterative analysis and triangulation process, the study has synthesized a clear and actionable roadmap for BBPVP Bandung's strategic transformation. The figure below visually synthesizes the three aggregate dimensions, their associated strategic imperatives, and the corresponding actionable steps derived through iterative coding, validation, and triangulation.
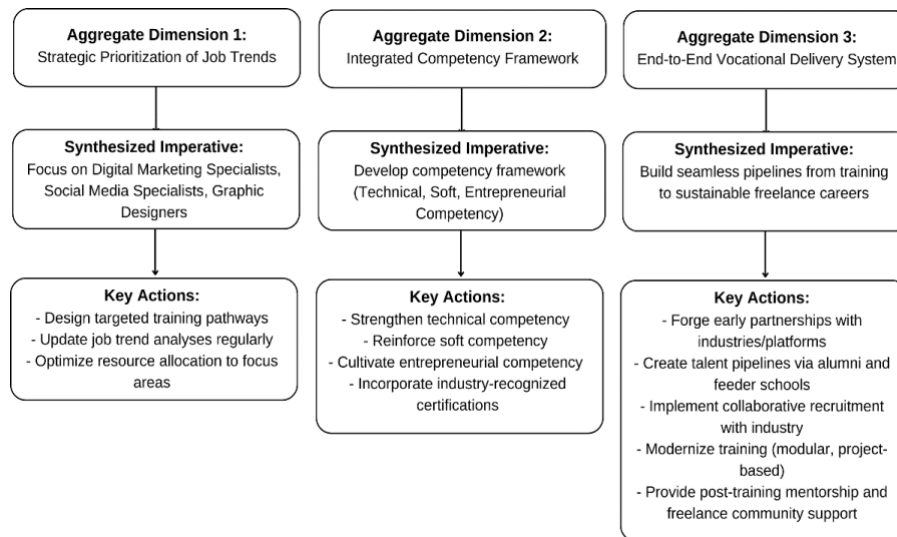
Figure 2. Strategic Recommendations Roadmap

This roadmap provides BBPVP Bandung with a clear, evidence-based framework for strategic transformation. By operationalizing each aggregate dimension into focused imperatives and concrete actions, the institution is better positioned to align vocational training with the realities of the gig and digital economy, ensuring future graduates are not only skilled, but sustainably employable.

This study shows that connection between external forces, specifically, the rise of the gig economy and the expansion of digital job markets, and the internal strategies needed to adapt. Through the structured use of Training Needs Analysis (TNA), BBPVP Bandung identifies the intersection between current industry demands, national digital ecosystem priorities, and internal institutional capacities. These inputs highlight as business solution that lead to the strategic prioritization of three critical job roles, Digital Marketing Specialist, Social Media Specialist, and Graphic Designer, the development of an integrated competency framework that addresses technical, soft, and entrepreneurial competency requirements, and the construction of an end-to-end gig-oriented vocational delivery system.
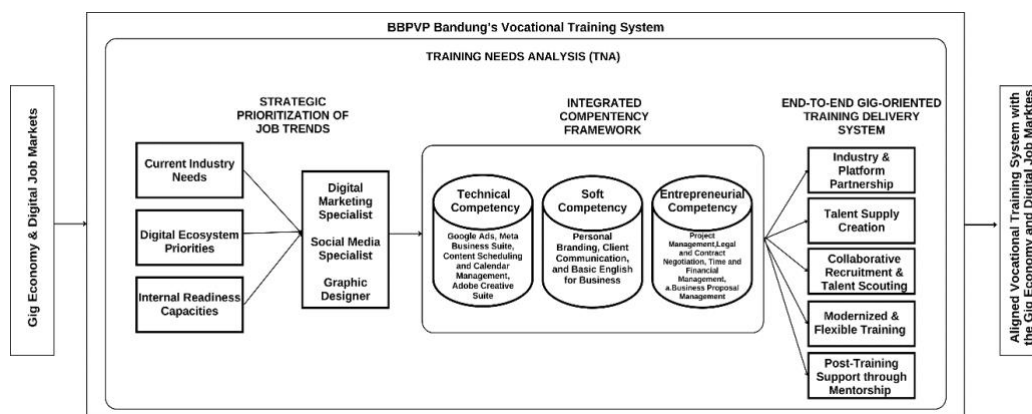

Figure 3. Business Solutions

CONCLUSION

The conclusions drawn from this study are firmly based on the results of the Training Needs Analysis (TNA) process and the iterative triangulation approach applied throughout the research. Each research question is addressed clearly, systematically linking empirical findings to theoretical development. The conclusions highlight how BBPVP Bandung can

strategically realign its vocational training programs to ensure relevance and sustainability in the future workforce.

Research Question 1: *What emerging job trends and industry demands should be identified and analyzed through the TNA process to align BBPVP Bandung's vocational training with the evolving needs of the gig economy and digital job markets?*

The TNA process identified three emerging digital job roles, Digital Marketing Specialist, Social Media Specialist, and Graphic Designer, as priority areas for BBPVP Bandung. This prioritization was based on a three-way intersection:

a. Industry Hiring Trends: Strong demand was consistently observed across freelance platforms such as Upwork, Fiverr, and Sribulancer for digital marketing, content creation, and graphic design services.

b. National Digital Ecosystem Initiatives: National programs supporting digital economy growth emphasized the urgent need for skills in digital marketing and creative industries.

c. Internal Resource Mapping: BBPVP Bandung's existing facilities, instructor expertise, and curriculum flexibility aligned well with the competencies required for these emerging job roles.

Thus, the study concludes that BBPVP Bandung should focus strategically on these three roles to maximize institutional capacity while meeting external market demands.

Research Question 2: *How should a competency framework and training program be developed through the TNA process to equip BBPVP Bandung's vocational graduates with the essential skills for success in gig-based and digital employment?*

An Integrated Competency Framework was formulated, addressing three critical dimensions across each prioritized job trend:

1. Technical Competency

Technical competency refers to master the specific job-related tools required to perform tasks effectively and deliver high-quality output. In the gig economy, this is fundamental for gaining and maintaining client trust.

a. Digital Marketing Specialists need expertise in Data-driven Campaign, SEO Strategies, and using tools like Google Ads and Meta Business Suite.

b. Social Media Specialists need expertise in Content Scheduling and Calendar Management, Social Media Performance Analytics and Engagement Optimization.

c. Graphic Designers must master Adobe Creative Suite and Visual Content Production.

These are forming the technical foundation for work readiness and client deliverables in digital freelance markets.

2. Soft Competency

Soft competency involves interpersonal and cognitive ability, such as communication, adaptability, and collaboration, that enable individuals to perform effectively in dynamic, remote environments. They are distinct from task execution and vital for managing clients, resolving conflicts, and building trust in decentralized digital teams.

a. Digital Marketing and Social Media Specialists must excel in Client Relationship Management and Brand Tone Adaptability.

b. Graphic Designers must excel in Brief Interpretation Accuracy and Creative Concept Pitching.

Additionally, shared soft competencies across all roles include Personal Branding, Client Communication, and Basic English for Business, marking a shift in baseline expectations for digital freelancers.

3. Entrepreneurial Competency

Entrepreneurial competency refers to the knowledge, skills, and mindset needed to identify opportunities, manage risk, and sustain independent careers. Unlike soft

competency that emphasize interaction, entrepreneurial competency focusses on self-direction, opportunity creation, and financial sustainability, critical for succeeding in freelance and platform-based work. Across all three roles, graduates must develop:

a. Project Management
b. Legal and Contract Negotiation
c. Time and Financial Management
d. Business Proposal Management

These competencies enable graduates to function not just as service providers, but as self-managed entrepreneurs in competitive digital markets.

By embedding these integrated competency frameworks into specialized modules, BBPVP Bandung prepares graduates not only for technical execution but also for independent, sustainable careers in freelance digital markets.

Research Question 3: *How can the TNA process be utilized to design and implement an effective program delivery model that aligns BBPVP Bandung's vocational training system with the gig economy and digital job markets?*

The TNA process informed the development of an End-to-End Gig-Oriented Vocational Delivery System, which includes:

a. Industry & Platform Partnership: Collaborating with freelance platforms and companies to keep training aligned with real job demands.
b. Talent Supply Creation: Engaging feeder vocational schools and alumni networks to maintain a consistent supply of digitally capable candidates.
c. Collaborative Recruitment & Talent Scouting: Co-developing internships and recruitment efforts with industry for better job matching.
d. Modernized & Flexible Training: Shifting towards modular, micro-credential, and project-based learning to mirror freelance realities.
e. Post-Training Support through Mentorship: Establishing mentoring systems, alumni communities, and career advisory services to support long-term graduate success.

This delivery system ensures a sustainable vocational ecosystem that not only trains but continuously integrates graduates into the freelance and digital economy.

The study establishes that through strategic job prioritization, integrated competency development, and a comprehensive end-to-end vocational delivery model, BBPVP Bandung can successfully realign its programs with the demands of the modern freelance and digital economy. These transformations ensure that BBPVP Bandung remains future-ready, competitive, and impactful in producing graduates who thrive in a rapidly changing workforce landscape.

REFERENCES

Anderson, L. W., & Krathwohl, D. R. (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. Longman.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. Qualitative Research in Psychology, 3(2), 77–101.

Creswell, J. W., & Poth, C. N. (2018). Qualitative inquiry and research design: Choosing among five approaches (4th ed.). Sage Publications.

Gioia, D. A., Corley, K. G., & Hamilton, A. L. (2012). Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. Organizational Research Methods, 16(1), 15-31.

Goldstein, I. L., & Ford, J. K. (2002). Training in organizations: Needs assessment, development, and evaluation (4th ed.). Wadsworth.

Google, Temasek, & Bain & Company. (2020). e-Conomy SEA 2020: Resilient and racing ahead.

Kalleberg, A. L. (2011). Good jobs, bad jobs: The rise of polarized and precarious employment systems in the United States, 1970s-2000s. Russell Sage Foundation.

Kalleberg, A. L., & Dunn, M. (2016). Good jobs, bad jobs in the gig economy. Perspectives on Work, 20(1), 10-15.

Kementerian Ketenagakerjaan RI. (2023). Laporan Ketenagakerjaan Indonesia: Tantangan dan Peluang di Era Digital. Jakarta: Kementerian Ketenagakerjaan RI.

Kenney, M., & Zysman, J. (2016). The rise of the platform economy. Issues in Science and Technology, 32(3), 61–69. National Academy of Sciences.

Kvale, S., & Brinkmann, S. (2015). Interviews: Learning the craft of qualitative research interviewing (3rd ed.). Sage Publications.

McClelland, D. C. (1973). Testing for competence rather than for intelligence. American Psychologist, 28(1), 1–14.

McKinsey Global Institute. (2019). Independent work: Choice, necessity, and the gig economy. McKinsey & Company.

Spady, W. G. (1994). Outcome-based education: Critical issues and answers. American Association of School Administrators.

Spencer, L. M., & Spencer, S. M. (1993). Competence at work: Models for superior performance. John Wiley & Sons.

Statista. (2023). Growth in job postings on freelancer platforms in Indonesia from 2019 to 2023.

UNESCO. (2016). Technical and vocational education and training (TVET) policy review: Indonesia. UNESCO Publishing.

Upwork. (2025). Upwork unveils 2025's most in-demand skills. Upwork Investor Relations. https://investors.upwork.com/news-releases/news-release-details/upwork-unveils-2025s-most-demand-skills

World Bank. (2021). The Gig Economy Skills Framework. World Bank Publications.

World Economic Forum. (2020). The future of jobs report. World Economic Forum.

World Economic Forum. (2023). The future of jobs report. World Economic Forum.

Wright, P. M., & Geroy, G. D. (2001). Changing the mindset: The training myth and the need for world-class performance. International Journal of Human Resource Management, 12(4), 586-600.