Working Plan for Online On–the–Job Training Program Using SWOT–TOWS Matrix Analysis: A Case of Bachelor of Science in Information Technology (BSIT) Program at Nueva Ecija University of Science and Technology (NEUST) San Isidro Campus

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Abstract – *The objective of this study is to substantiate a good working plan for the implementation of the Online On–the–Job Training of the BSIT Program at NEUST San Isidro Campus, San Isidro, Nueva Ecija Philippines, using a thorough evaluation of internal and external factors affecting the operations of the program. Internal variables acted as the sole source of strengths and weaknesses, while external variables were the primary basis of opportunities and threats, on the other hand. With the application of TOWS Matrix, the proponents of the study identified nineteen general courses of action that will enable the university to strategically create a precise and accurate decision without sacrificing the quality of education and skills that the trainees may obtain in real application of Information Technology. Hence, it was found out that the institution needs certain protocols and guidelines improvement for the betterment of the said program. The researchers are recommending that the proposed strategic plan be implemented as early as possible, but it must be in full compliance with the future decision of the National Government of this state.*

Keywords – *BSIT program, online on–the–job training, strategic plan, SWOT–TOWS Matrix, working plan*

I. INTRODUCTION

The ultimate objective of every academic institution across the country is to build, form, and produce highly competitive students equipped with enough skills and knowledge that they can utilize after the formation stage inside the thick walls of the academic institution. Efforts and initiatives securing that students are handed over with the needed competence have remained the topmost concern of every higher educational institution. Over this, individuals have seen the value of investing in education (Schweke, 2004). However, owing to the doom of the current pandemic crisis, zeal and commitment to doing so are prohibited.

Today, students are considered global citizens and powerful agents of change. The protection of students and educational facilities is critical in these trying times. Precautions are necessary to prevent the potential proliferation of the virus in school settings. As a result, attempts to control the spread of the COVID–19 has affected all sectors of society worldwide, including the higher education system, which was forced to switch to remote emergency teaching (Hodges, Moore, Lockee, Trust, and Bond, 2020). In the Philippines, the Commission on Higher Education (CHED) imposed high levels of restrictions to avoid jeopardizing students' health and welfare. Universities, colleges, and schools started coming up with their circulars regarding closer and online classrooms, respectively. Despite the hopes by various institutions that there would be a re-opening of educational bodies in April 2020 (Dhawan, 2020), the condition worsened, and almost the majority of the educational organizations are not even prepared for shifting the daily face–to–face classes into virtual setup (Sarif, 2020)

As a consequence of this situation, technology has been regarded as a remedy, even though it would never replaceface–to–face interaction (Miller, 2020). It has become an essential component for it plays an increasing role in education these days. Likewise, technology allows students to pursue individual development from the comfort of their devices. In fact, educational institutions started to adopt new technology, knowing that they are making an investment in their students' future. After all, technology is not going anywhere—it is a powerful asset in any modern learning process. Despite the availability of all the promising technological advances, the reality that some knowledge and skills can only be obtained through face–to–face demonstration and dramatization was never ignored.

When remote or distance education became an alternative in the teaching and learning process during the third quarter of the year 2020, learners in the country experienced an abrupt transition, which is something they are not used to. They had to adjust from the usual face–to–face classroom setting to the new and challenging online

and modular learning. They were all required to finish the semester remotely and comply fully with different course requirements. On—Job Training (OJT) or Internship is one of those and a dilemma faced by students. This scenario made student trainees even more puzzled about how they will acquire skills related to their course. It has been evident that the usual OJT that students undergo is of paramount help because it gives them familiarity with the realities of working. Concerning this, the Commission on Higher Education (CHED) said that it is reviewing the possibility of a flexible internship or On—Job Training (OJT) program for college students who need it to complete their studies (San Juan, 2020). Under these circumstances, creating ametal–like a strategy that is not easily be mauled by externalities and unforeseen predicaments is mandatory for this institution to maintain an effervesce situation even in the middle of the COVID–19 pandemic crisis. Undeniably, it is a must to value collaborative behavior among educators, such as exchanging practices and gaining perspectives from the experiences of colleagues, which can inspire them to deliver quality education by leveraging the resources available in times of remote emergency teaching (Lansangan, 2020).

Since remote learning has presented several drawbacks, there is thus a need to highlight the importance of creating a plan in this situation. The researchers decided to utilize a SWOT analysis to comprehend the internal controllable and the external uncontrollable. In the same way, to illustrate it further, the proponent of the study utilized TOWS Matrix Analysis to extract the best strategy applicable for online training, especially for the Bachelor of Science in Information Technology programs.

Problems are part of a growing series of policy matters that are the most challenging because they require comprehensive simultaneous solutions to a basket of problems (Mathur, 2020). Therefore, identifying the learning gaps or academic loopholes due to health restrictions can be considered the foundation of this study. In contrast, the proponents mapped the curriculum accordingly to address these issues as part of the internal controllable, more so as a basis for constructing strategic courses of action planning for proper implementation.

Moreover, defining the current situation of external factors has a significant role for this study because the identified strategies implementation must liquefy adequately to avoid conflicts with the prevailing rules and restrictions of the Philippine National Government. Thus, the Online On–the–Job Training or Internship of the students can be implemented most systematically.

II. METHODOLOGY

This research used a SWOT analysis to classify the internal and external variables of the conduct of Online On–the–Job Training or Internship provided by the Nueva Ecija University of Science and Technology–San Isidro Campus in Nueva Ecija, Philippines, for the Bachelor of Science in Information Technology program. Chang and Huang (2006) suggest that quantified SWOT research facilitates the overall process and thus plays an important role in strategic planning. Also, the quantification of components of SWOT analysis and their comparisons compels decision-makers to consider the situation more precisely and to analyze it in more depth (Kangas, Pesonen, Kurttila, and Kajanus, 2201).

In this study, the researchers were able to determine the strengths, weaknesses, opportunities, and threats of the services by interviewing the different stakeholders of the campus, including the administrators, department chairs, faculty and staff, students, and even the existing partner agencies in the IT Industry (Navarro, Mina, and Campos, 2020). Since SWOT is one of the most widespread methods of management and is an instrument used by managers in creating strategies (Kurttila, Pesonen, Kangas, and Kajanus, 2000), this is the best method to be used to attain the objectives of this study. At the same time, in the context of the TOWS Matrix, this research established alternative courses of action or strategic plans based on certain variables. TOWS Matrix is used to analyze the external environment (threats and opportunities) and the internal environment (weaknesses and strengths) in order to draw the strategies and visions to the decision-makers in the institution or at the country level. Each combination of the external and internal factors results from a new strategy, as shown in Figure 1, where mainly four different combinations are developed (Ravanava and Charantimath, 2012; Weihrich, 1982)

III. RESULTS AND DISCUSSIONS

A. SO (Strengths/Opportunities) Strategies

a) The University can look for partner agencies that offer Online On—Job Training and can have a Memorandum of Agreement (MOA) with them (S2, S5, S6 vs. O1). With the capacity of the On—Job Training and Career Development Center, the University can provide a pool of industry partners with Memorandum of Agreement/Understanding to the stakeholders so that the student–trainees can check the list of the credible institutions which can cater and provide appropriate knowledge and skills using online platforms. In general, companies freely lend a hand in supplying students with adequate OJT apprenticeship opportunities, understanding that educating future employees is not the academy's sole responsibility but a joint mission of the University and Partner Agencies (Barron, Berger, and Black, 1997)

THE CONDUCT OF ONLINE ON–THE–JOB TRAINING/INTERSHIP OF THE BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY STUDENTS AT NEUST SAN ISIDRO CAMPUS	STRENGHTS 1. Provides students the opportunity to work from the comfort of their homes 2. Enables the students to choose from a pool of opportunities with minimum restrictions 3. Prepares one for the future corporate environment 4. Discounts students on traveling time 5. Deliver the exact same online training course content to everyone 6. Keeps oneself out of office politics 7. Boost trainee's level of self–discipline and professionalism	WEAKNESSESS 1. Absence of a real office environment and real mentorship 2. Largely dependent on video conferencing emails, and virtual meetings, which require a good internet connection 3. Demands trainees a minimum level of computer knowledge and online platform 4. With no specific allocation of time for the learning process 5. Requires trainees a greater amount of reading. 6. Disconnects trainees from company culture; no social interaction at all
OPPORTUNITIES 1. Finding other options on the side that can give additional opportunities. 2. More time to discover the chosen field 3. More exposure to technology skills 4. The gain network of online IT experts/professionals 5. Support for a start–up	SO (STRENGHT/OPPORTUNITIES) STRATEGIES 1. The university can look for partner agencies that offer Online On–the–Job Training and can have Memorandum of Agreement (MOA) with them (S2, S5, S6 vs. O1) 2. Given the list of partner agencies, the institution must look for agencies that can provide a better IT experience to student–trainees, even using an online modality (S3, S7 vs. O2) 3. With the identified agencies, the student–trainees can obtain a high opportunity of learning at a meager cost due to online platform modality (S1, S2 vs. O1) 4. The student–trainees will have the opportunity to be exposed to a wide array of projects that can be applied to their future endeavors, whether being in a company or starting up business (S3 vs O5) 5. The student–trainees will have the opportunity to become members of the Online IT Community sometimes as a required in doing their task, thus, gaining a network of IT professionals (S7 vs. O4) 6. The student –trainees will have the opportunity to navigate various communication platforms and the agencies software system that will gain not only fluency in different systems but also the ability to troubleshoot technical glitches (S2 vs O3)	WO (WEAKNESSES/OPPORTUNITIES) STRATEGIES 1. Given the identified pool of partner agencies, the university must create specific research to evaluate learners outcomes regarding employability and job specification (W1 vs. O1) 2. The institution must put into consideration that the students must select office with sufficient internet and technological resources (W2, W3 vs. O1) 3. With the On–the–Job Training and Career Development Center's updated list, the OJT Coordinator's Office must set a specific time of duty (W4 vs. O1) 4. The institution should ensure that there is a Standard Operating Procedure being followed in using the agencies' software systems and communication platforms through its coordinator (W1 vs O3) 5. The OJT Coordinator should ensure that agencies compel student–trainees to adhere to their job descriptions to avoid doing other things online (W1 vs O4)
THREATS 1. Security threat goes beyond corporate data 2. Shared online content becomes a security risk 3. Limited teamwork 4. Miscommunication on the assignment of tasks 5. Difficulty on transfer of knowledge	ST (STRENGHT/THREATS) STRATEGIES 1. The OJT Coordinator can create rigid training for the student–trainees to know legal background concerning the potential liabilities and consequences of unethical actions (S1 vs. T1, T2) 2. The OJT Coordinator must evaluate the trainer's readiness to determine the Office's capacity in terms of IT resources (S5 vs T3) 3. The OJT Coordinator must confirm that standard communication protocol is appropriately placed by the agencies during internship (before the actual immersion) of the student–trainees (S2 vs T4) 4. The OJT Coordinator should ensure that (collaborate with) partner agencies or creating and designing an Activity Plan for every student–trainee for the continuity of learning (S3 vs T5)	WT (WEAKNESSES/THREATS) STRATEGIES 1. The OJT Office must capacitate the student–trainees by creating a useful curriculum mapping to identify appropriate courses in developing IT skills (W3 vs. T1) 2. With the OJT Coordinators initiative, the student–trainees must have a good attribute of following the legal restrictions of the University's Partner Agencies and the OJT Program (W4 vs. T2) 3. The OJT Coordinator should act as mentor to student–trainees in terms of being a team player and in promoting proper office relationship (W1 vs T3, T6) 4. The OJT Coordinator should allocate the student–trainees weekly schedule to have a day dedicated solely for mentoring (W5 vs T4, T5)

Fig. 1 SWOT–TOWS Matrix of the Conduct of the Online On–the–Job Training of the BSIT Program in NEUST San Isidro Campus

b) Given the list of partner agencies, the institution must look for agencies that can provide a better IT experience to student–trainees, even by using an online modality (S3, S7 vs. O2). Prior to the deployment of the students for their On—job Training Program, students are required to attend orientation and Pre–Deployment Orientation Seminars and Workshops before they are endorsed by the OJT Coordinators to their respective offices identified as cooperating agency partner through a Memorandum of Agreement (MOA) (Bravo, Taguba, Calimag and Abaleta, 2018). Thus, the On—Job Training and Career Development Center must conduct a profound investigation and thorough research evaluation to assess the partner institutions' impact on the student–trainees' career development. The assessment component must cover at least the employability and nature of the job landed by the trainees after the OJT Program.

Adawiyah and Yazid (2013) suggested that there is a need to develop the skills of students, especially while they are still enrolled at the university, in order to undergo more internship and industrial training programs to make them well–prepared for the job market and align their skills with the industry's needs.

c) With the identified agencies, the student–trainees can obtain a high opportunity of learning at a meager cost due to the online platform modality (S1, S2 vs. O1). With the partner institutions' screened list, the OJT Coordinator can assign the students to agencies and offices outside the province without jeopardizing the health regulations and IATF restrictions. The OJT office will only authorize online modality in the conduct of the internship. As an academic institution, it is the responsibility of the University to build career preparation pathways through the degree programs it is offering in order to help students gain entry into (Wenger, 1998) the Computing Practice Communities (CoP) and make their transition as successful as possible from college to industry.

Moreover, the On—Job Training Program exposed the students to different IT situations wherein the student–trainees had a chance to apply their skills, knowledge, and attitude in the workplace (Verecio, 2014).

d) The student–trainees will have the opportunity to be exposed to a wide array of projects that can be applied to their future endeavors, whether being in a company or starting up a business (S3 vs. O5). Workplace learning is a series of processes that take place within a particular organizational context (Garavan, Morley, Gunnigle and McGuire, 2002), which includes the acquisition and assimilation of interconnected clusters of information, skills, beliefs, and feelings that contribute to fundamental improvements in the attention and behaviors of individuals and teams. It only implies that empowerment may encourage student–trainees to acquire new knowledge or skills, and direct supervision from trainers may facilitate the sharing of knowledge or skills within the workplace during their internship (Sakakibara, 2004). On this account, Smith and Green (2001) have emphasized that the opportunity to work on various sections and portions of the

entire job with enough time spent on each task should be given to a student–trainees.

e) The student–trainees will have the opportunity to become members of the Online IT Community sometimes as a requirement in doing their task, thus, gaining a network of IT professionals (S7 vs. O4). Building an immense network with IT professionals will give an adequate edge for beginners to establish their names in the field of Information Technology. The concept of establishing brand identity is very important for this kind of endeavor for the reason that the business nature of Information Technology can be categorized in the form of services. The name and connection per se will provide some sort of security for the client of the previous experiences they have obtained from the group. Theoretically, this is the real application of "brand association" in the form of services to persuade the market to try the services of new market entrants.

f) The student–trainees will have the opportunity to navigate various communication platforms and the agencies' software systems that will gain not only fluency in different systems but also the ability to troubleshoot technical glitches (S2 vs. O3). Many state universities and colleges are now fitted with numerous technological devices, pushing students and teachers to immerse themselves in smartphone and computer-mediated practices in a very unusual way (Shana, 2009; Yang, 2009).

Furthermore, a significant number of studies have shown that obtaining knowledge and skills are only bounded within the four corners of the classroom; more so, it is said that the best teacher is experienced. Thus this premises is also applicable in the OJT online platform for the reason the student trainees can build a vast network that can enhance their knowledge in terms of the actual application of different software and programs.

B. WO (Weaknesses/Opportunities) Strategies

a) Given the identified pool of partner agencies, the University must create specific research to evaluate learners' outcomes regarding employability and job specification (W1 vs. O1). With the capacity of the On—Job Training and Career Development Center, the University can provide a pool of industry partners with Memorandum of Agreement/Understanding to the stakeholders so that the student–trainees can check the list of the credible institutions which can cater and provide appropriate knowledge and skills using online platforms. In general, companies freely lend a hand in supplying students with adequate OJT apprenticeship opportunities, understanding that educating future employees is not the academy's sole responsibility but a joint mission of the University and Partner Agencies (Barron, Berger, and Black, 1997)

b) The institution must put into consideration that the students must select offices with sufficient internet and technological resources (W2, W3 vs. O1). The pandemic crisis brought dramatic changes in the academic institution; however, propagation of learning must continue, thus identifying agencies with enough resources is mandatory for the On—Job Training and Career Development Center to guarantee the quality of learning that the students can acquire from them.

McCain (2005) elaborated that the use of technology in the classroom is not the critical issue facing education in the 21st century. Rather, the most important issue is to improve students' thinking abilities so that they can use the power of technological tools to solve problems and do useful work.

With the use of technological resources, internship programs or training courses can still allow trainees to develop critical skills in a work-based environment, enabled by experiential learning (Ruhanen, Robinson, and Breakey, 2013).

c) With On—Job Training and Career Development Center's updated list, the OJT Coordinator's Office must set a specific time of duty (W4 vs. O1). On—Job Training and Career Development Center, with the OJT Coordinators' help, must work collaboratively and simultaneously with the partner agencies to set a specific time of duty. Moreover, the center must publish detailed guidelines concerning the issues relevant to Online On—Job Training. The new guidelines must surpass the current guidelines because the prevailing rules and regulations of the institution are no longer applicable in the current situation. The new guidelines must cover the total number of hours to be rendered, the duties, responsibilities, and liabilities of the student–trainees, and the contingency measure to ensure the students' safety and security in case of undesirable circumstances. The said guidelines must be duly approved by the University's Board of Regents.

The OJT Coordinator should take into consideration different factors in order to offer internship courses without breaching the university regulations. Some of what is taken into consideration when offering internship courses include the following (Svacina, 2013; Tooley, 1997; Van Hoof, 1999): a. Decide on a number of credits to take for the course; b. The number of hours to work for each internship program; c. The span of the course in weeks, months, or semesters; and, d. Eligibility procedures for approving the prescribed employers.

d) The institution should ensure that there is a Standard Operating Procedure being followed in using the agencies' software systems and communication platforms through its coordinator (W1 vs. O3). Jasmin (2017) evaluated the students' OJT performance online and found out that the online OJT performance platform has fulfilled its practical requirements in implementing the students' modern way of conducting, productive use of time, advisor, and supervisor.

The center must also work in full cooperation with the College of Information and Communications Technology to build a specific program that will enable the University to navigate the student–trainees' activities related to On—Job Training. Hence, the said program's concept will serve as a depository of detailed trainees' activities, "an online diary" accessible to the trainer and the assigned university OJT Coordinator.

e) The OJT Coordinator should ensure that agencies compel student–trainees to adhere to their job descriptions to avoid doing other things online (W1 vs. O4). The OJT Coordinator as a coach must observe the trainees if they are working on the tasks given by their trainers (Bonifacio, 2013). This can be monitored by the mandatory submission of Weekly Report from the student–trainees with their immediate supervisors' signature to countercheck whether the students are complying with their assigned tasks. The coordinator needs to synchronize the work at all levels to ensure a successful experience (Robeck, Pattison, Pate, and Pattison, 2013).

C. ST (Strengths/Threats) Strategies

a) The OJT Coordinator can create rigid training for the student– trainees to know legal background concerning the potential liabilities and consequences of unethical actions (S1 vs. T1, T2). Creating a Pre–Deployment Orientation Seminar (PDOS) is more likely applicable in the old era, whereas student–trainees have direct contact with the trainers, the trainer can guide, equip and, control them. This endeavor is not applicable nowadays because of the pandemic crisis; thus, the center must apply a series of a webinar to continually reiterate and remind the student–trainees on their duties, responsibilities, and personal liabilities about work-related issue and concerns.

By practice, before beginning the internship, the coordinator needs to prepare the students for the internship (Thiel and Hartely, 1997). It also requires the completion of the required prerequisites and an approval process to ensure adequate reference for success at the internship program.

b) The OJT Coordinator must evaluate the trainer's readiness to determine the Office's capacity in terms of IT resources (S5 vs. T3). Training is one of the ways of improving an organization's effectiveness. In order to implement the right training methods, the organization should be aware of the training methods and their effectiveness (Alipour, Salehi, and Shahnavaz, 2009).

Hence, the OJT Coordinator must provide a certain checklist that serves as the requisite before authorizing a certain institution to cater to students from the NEUST.

c) The OJT Coordinator must confirm that standard communication protocol is appropriately placed by the agencies during the internship (before the actual immersion) of the student–trainees (S2 vs. T4). Thiel and Hartley (1997) explained that the absence of clear criteria

might lead to counterproductive results for the students and the University.

The institution is in full compliance with the International Organization for Standardization; thus, all programs, forms, and processes within the University were duly approved by this organization. Therefore, for the ILCO department to uphold these standards, the ILCO director must execute a memorandum circular concerning all OJT coordinators to ensure that the trainees and trainers approximately absorbed all standard communication protocols.

d) The OJT Coordinator should ensure that (collaborate with) partner agencies or creating and designing an Activity Plan for every student–trainee for the continuity of learning (S3 vs. T5). The unprecedented crisis challenged the academic institutions across the country for sustaining the quality of academic standards became more complicated than traditional learning. More so, there are some instances that skills and knowledge cannot obtain without the actual demonstration. The same is true for Online OJT; thus, the OJT coordinator may collaborate with the identified partner agencies to map appropriate topics that are necessary practices, hence neglected in the curriculum.

D. WT (Weaknesses/Threats) Strategies

a) The OJT Office must capacitate the student–trainees by creating a useful curriculum mapping to identify appropriate courses in developing IT skills (W3 vs. T1). The College of Information and Communications Technology must conduct a curriculum mapping forum to identify special topics related to the curriculum. This endeavor aims to boost the learner's intellectual capacity in terms of courses and topics that are deemed to be essential and vital in the real application of the course in the industry.

Internships, however, are a source of practitioner input into curriculum development and a forum for student and curriculum assessment (Thiel and Hartley, 1997).

b) With the OJT Coordinators' initiative, the student–trainees must have a good attribute of following the legal restrictions of the University's Partner Agencies and the OJT Program (W4 vs. T2). Professionalism is the key to a harmonious relationship within the organization; thus, the OJT Coordinator, with the help of the University Training Department, can outsource trainers and speakers from other institutions to discuss proper etiquette within the organization.

Arnold (1998) revealed that one of the significant internship disappointments courses is the lack of fit between internship requirements and students' backgrounds. This can be avoided if the University would prevent the situation by injecting the right preemptive steps.

c) The OJT Coordinator should act as a mentor to student–trainees in terms of being a team player and in promoting proper office relationships (W1 vs. T3, T6). Typically, mentoring takes place during internships. Internship programs often coordinate with the internship sites to manage this mentoring and learning process, thus facilitating the learning process (Trede, Mcewen, and Sheehan, 2013). Due to the current situation, the OJT Coordinator shall also act as a student–trainees' mentor to prepare them to become good team players and social interactors.

It only denotes that learning is not just about knowledge but also about motivation, engagement, and social interactionsş (Dettori, Gianneti, Paiva, and Vaz, 2006).

d) The OJT Coordinator should allocate the student–trainee's weekly schedule to have a day dedicated solely for mentoring (W5 vs. T4, T5). The OJT Coordinator, as well as the Trainer/Supervisor of the partner agencies, should have close supervision and monitoring of the students on a daily, weekly, and monthly basis in order to be updated on the performance and accomplishments and make comments or suggestions in every aspect of the students' performance to improve their skills (Bravo, Taguba, Calimag, and Abaleta, 2018)

By practice, there is a weekly schedule of consultation from the OJT Coordinator wherein the student–trainees can ask freely from their coach so they can be guided accordingly.

IV. CONCLUSION AND RECOMMENDATION

The objective of the study is beneficial to the On—Job Training Program of the Nueva Ecija University of Science and Technology, specifically in the Bachelor of Science and Information Technology course, for it covers strategic courses of actions to maintain the University on effervesce situation even in the middle of extraordinary crisis. Based on the assessment of internal and external factors, the researchers identified that external agencies govern the State Universities and Colleges in terms of the internship policy implementation, such as the rules of the Commission on Higher Education and the health protocols from the Inter-Agency Task Force.

As an academic institution, the University aims to maintain the quality of learning despite all health restrictions. Thus, formulating strategic courses of action within the University's internal capability is mandatory. However, despite all labors and simultaneous planning, the University must also prepare a detailed action plan to avoid jeopardizing education quality.

Furthermore, it is recommended that the sequence of revisions to the implementation of the strategic action plan should be constant due to the unanticipated internal effect of online learning, the rapid changes to the rules implemented by the external bodies regulating academic institutions across the country, and the evolution of technology, which is, continuous in nature.

Therefore, the researchers suggest that the proposed strategic action plan be implemented to promote the student's development of employer–valued skills such as collaboration, communication, and attention to detail.

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