DIGIFABS

Digital Change Agents for Food + Beverage SMEs

STUDENT SKILL GAP ANALYSIS

This publication was created as part of the Erasmus+ Alliance for Innovation project Responsible Dynamic Digital Change Agents for Food And Beverage SMEs (DIGIFABS, Project ID: 101140130).
Co-funded by the European Union. Views and opinions expressed are however those of the authors only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Co-funded by the European Union

2024
Student Skill Gap Analysis

By
AUAS

EXECUTIVE SUMMARY

The DIGIFABS project addresses critical skill gaps required for digital transformation in the Food and Beverage (F&B) industry, bridging academia and industry collaboration. This report identifies key skill gaps between students' self-assessed competencies and the skills prioritised by SMEs and educators. Significant gaps were found in flexibility, systems thinking, and promoting sustainability—essential for adaptability and strategic planning. While students showed strong proficiency in digital tools, particularly interaction through technologies, their confidence in other areas often fell short of industry expectations, underscoring the need for targeted educational interventions.

These findings will inform the development of DIGIFABS summer schools and bootcamps, which will develop students' skills to act as "responsible dynamic digital change agents". In developing the DIGIFABS learning materials a specific focus will be placed on flexibility, strategic competencies, and sustainability through practical, real-world training. By aligning academic programmes with industry demands, DIGIFABS aims to cultivate a digitally skilled and resilient workforce capable of driving innovation in the F&B sector, ensuring sustainable growth and transformation across Europe..

CONTENTS

01 Introduction

02 Methodology

03 RDDCA Skill Gap Analysis Findings

04 Key Findings

05 Conclusion

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them

www.digifabs.eu

01

INTRODUCTION

INTRODUCTION

The Food and Beverage (F&B) industry, a cornerstone of the European economy, is undergoing significant transformation driven by digitalisation, sustainability, and evolving consumer demands. In this era of rapid technological change, industries are facing pressure to adopt digital transformation to maintain competitiveness (Daminov et al. 2021). Small and Medium-sized Enterprises (SMEs) in the F&B sector face the same increasing pressure to adapt their business models and operational strategies. However, the successful implementation of digital transformation requires not only access to technology but also a workforce equipped with relevant digital, organisational, and strategic skills (Browder et al., 2024).

The DIGIFABS Project (Responsible Dynamic Digital Change Agents for Food and Beverage SMEs), funded under the Erasmus+ programme, seeks to address these challenges by identifying and bridging critical skill gaps within the sector. This initiative aims to prepare future Responsible Dynamic Digital Change Agents (RDDCAs) who can drive digital, sustainable, and resilient transformations in F&B SMEs.

To achieve this, a comprehensive skill gap analysis was conducted to assess the readiness and needs of students, educators, and SMEs regarding digital skills, tools, and methodologies. As a component of D3.1, a separate output (and integral to D3.1) has been produced: DIGIFABS – Synthesis of Literature and Interviews. This output explores the key dimensions as perceived by industry leaders and academia as integral to the successful digital transformation of the F&B sector. Further, it serves as a foundation for this study to follow up on the identified skill areas with the skill gap analysis.

This analysis focuses on six key dimensions that underpin successful digital transformation:

- Strategy: Building the ability to plan, analyse, and implement strategic initiatives.
- organisation: Enhancing teamwork, project management, and agile workflows.
- Culture: Encouraging adaptability and experimentation with new digital tools.
- Technology: Equipping individuals with hands-on experience in modern digital systems.
- Resources: Identifying and addressing digital competency gaps.
- People: Strengthening communication, emotional regulation, and well-being.

This report outlines the findings of the skill gap analysis, highlighting the critical areas where digital skills and competencies need to be developed further through comparative analysis of the skills presumably possessed by students and the level of importance of those skills as perceived by industry experts and academia. It also serves as the foundation for the subsequent activities of the DIGIFABS project, including the design of educational interventions such as summer schools, bootcamps, and publicly available training materials.

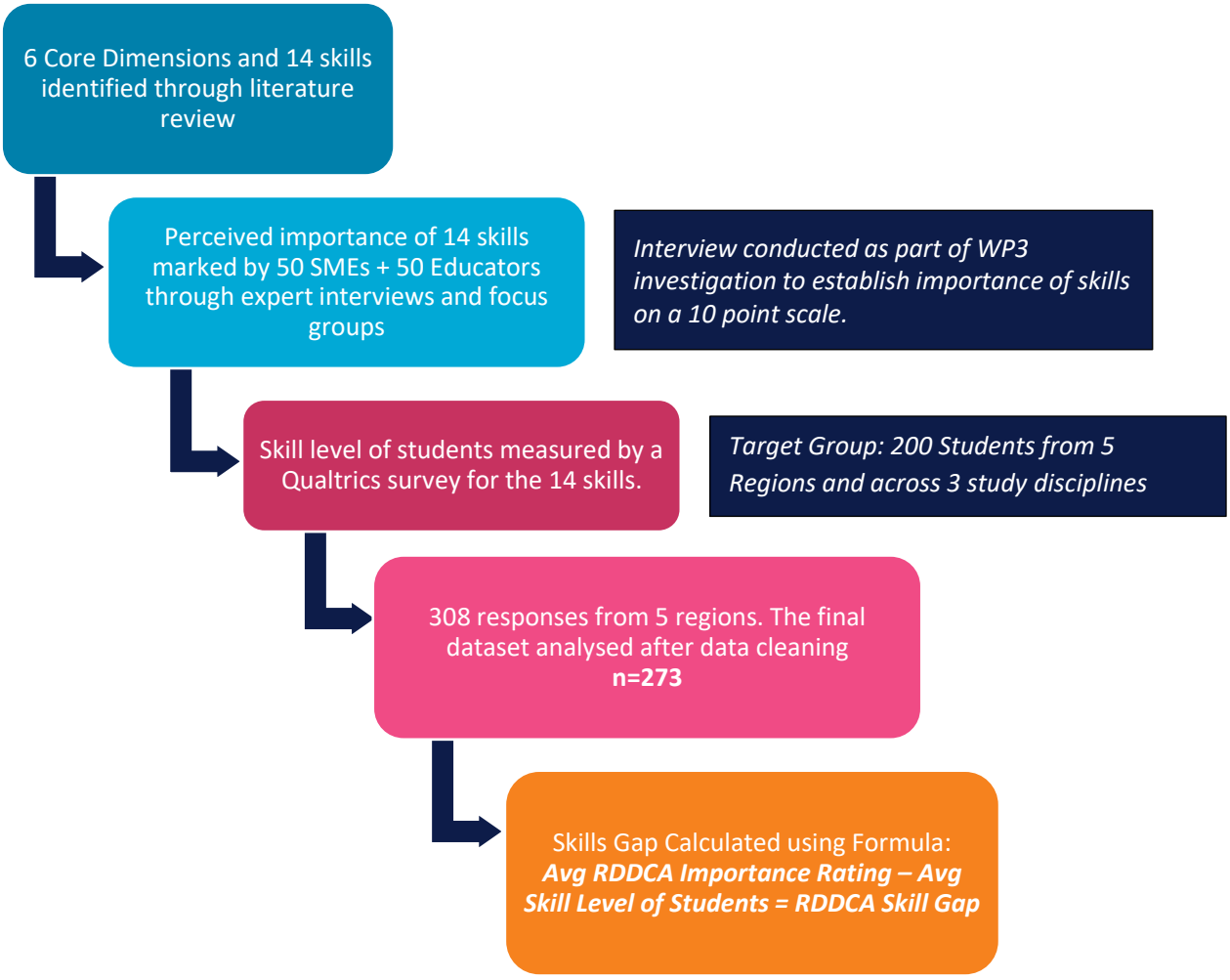
By aligning educational outcomes with industry needs, the DIGIFABS project not only aims to equip students and educators with relevant skills but also to empower SMEs in the F&B sector to thrive in a digital-first environment. This report provides valuable insights into existing skill gaps and offers a roadmap for fostering a digitally competent and future-ready workforce.

02

METHODOLOGY

METHODOLOGY PROCESS

The methodology for the DIGIFABS Skill Gap Report was designed to systematically assess existing skill gaps among students in relation to the RDDCA skills identified under the six core dimensions. This approach integrates a structured framework for identifying and analysing skill gaps based on their perceived importance and utility. A comprehensive survey was distributed to students across the higher education institutes partnering for the DIGIFABS project (Amsterdam University of Applied Sciences, FH Münster University of Applied Sciences, Maynooth University, Slovak University of Agriculture in Nitra, and University of Szczecin). The approach combined quantitative surveys to ensure a comprehensive understanding of the digital skill needs among key stakeholders: students, educators (and industry experts), and SMEs.



TARGET GROUP

Two primary target groups were identified to assess the relevance and gap of Responsible Dynamic Digital Change Agent (RDDCA) skills, particularly for facilitating digital transformation in the Food and Beverage (F&B) industry: SMEs, Academics & Industry Experts and Students

SMEs, Academics & Industry Experts

This group was approached to identify the importance of RDDCA skills from the perspective of those actively engaged in the F&B sector's digital transformation. Their insights help shape the framework for skill development that aligns with current and future industry demands.

- SMEs: 50 small and medium enterprises from the F&B industry participated, providing critical input on industry-specific challenges and skill needs for enhancing digital transformation and resilience.
- Educators and Industry Experts: 50 respondents from educational and training institutes, along with sector specialists, contributed to understanding the pedagogical and strategic priorities necessary for developing future-ready change agents.

These stakeholders participated in interviews and surveys aimed at evaluating the perceived importance of skills across six core dimensions of the DIGIFABS framework: Strategy, organisation, Culture, Technology, Resources, and People. Data collected through a quantitative survey was analysed using Microsoft Power Bi to identify the perceived importance of skills for digital transformation in the industry, which will inform both this report and the broader quantitative analysis of skill gaps.

Students

This group was surveyed to assess the existing level of RDDCA-related skills among students in higher education, who represent the next generation of change agents. The survey aimed to determine both their self-perceived competencies and gaps relative to the industry requirements identified by SMEs, educators, and experts. This survey was distributed to students from the regions of the following institutions:

- Amsterdam University of Applied Sciences, Netherlands
- FH Münster University of Applied Sciences, Germany
- Maynooth University, Ireland
- Slovak University of Agriculture in Nitra, Slovakia
- University of Szczecin, Poland

Students participated from the 5 regions from educational disciplines including business administration, technology, engineering, food and nutrition sciences, and agriculture. These fields align with the multidisciplinary demands of the F&B sector. There was a strong focus on targeting students in advanced level of studies in their disciplines, which is reflected in the demographic data.

SURVEY DESIGN

A structured quantitative survey was developed to gather insights from students regarding their exposure to and competency in skills critical for digital transformation. Aside from collecting demographic data, the survey was designed to assess six core dimensions relevant to transformations of SMEs in the F&B sector:

- Strategy: Strategic planning and analytical skills.
- organisation: Teamwork, project management, and agile methodologies.
- Culture: Adaptability and openness to digital experimentation.
- Technology: Familiarity with digital tools and systems relevant to the F&B industry.
- Resources: Identification of personal digital skill gaps.
- People: Communication, emotional regulation, and overall well-being.

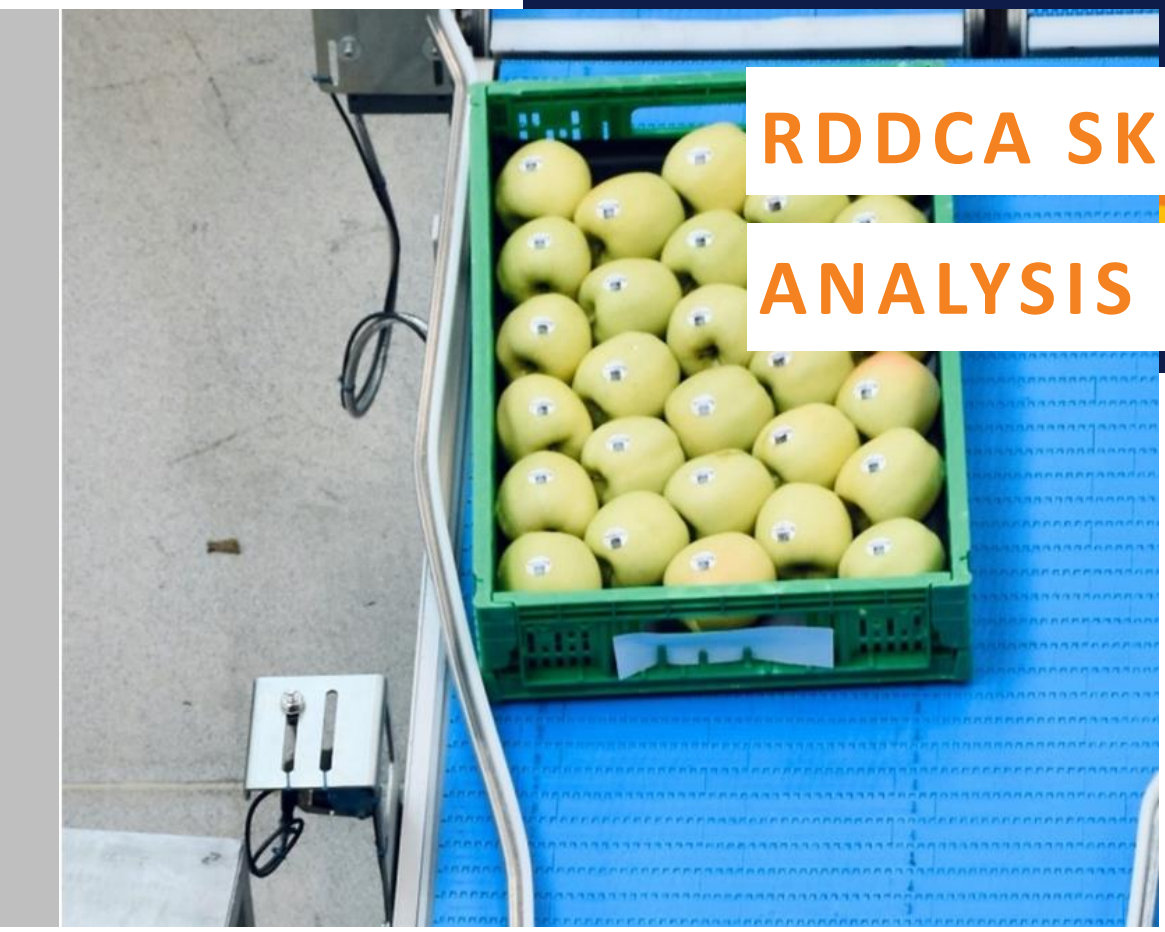
14 skills were outlined in WP3 'Investigation' to be of importance for digital transformation under the 6 dimensions mentioned above. While the 6 dimensions refer to organisational dimensions which appeared as important for F&B SMEs, the associated skills under each dimension outline specific competencies that qualified leaders of digital change in SMEs (referred to as RDDCAs) should possess to be effective. This student survey included demographic questions for region of study, discipline of study (technology, business, food, nutrition, etc.) and level of study. The survey included a self-assessment based on the skillset mentioned in Table 1.

Dimension	Skill	Definition of Skill
Strategy	System thinking	Helps in analysing complex systems and aligning them with strategic goals for sustainable solutions.
	Promoting sustainability	Valuing sustainability as a key component in long-term business strategy and transformation.
	Critical thinking	Evaluating strategic decisions and innovations critically ensures a thoughtful approach to transformation.
organisation	Problem framing	Identifying and defining problems aids in organizing resources and teams to address strategic challenges.
	Evaluating information	Helps in organisational decision-making by assessing the relevance and reliability of information.
Culture	Flexibility	Adaptability to change is crucial in fostering a culture open to transformation and innovation.
Technology	Interaction through technologies	Effective use of digital tools for communication and collaboration in digital transformation efforts.
	Innovating creatively using technologies	Leveraging technology for innovative solutions that align with the transformation strategy.
	Solving technical problems	Key in ensuring smooth technological operations during the digital transformation process.
	Technical adaptability	Adjusting to new tools and technologies ensures effective technology adoption during transformation.
Resource	Identifying digital competence gaps	Assessing skills gaps helps allocate resources to training and development in digital competencies.
People	Self-regulation	Managing personal emotions and behaviour is essential for personal growth and adaptation in a transforming environment.
	Wellbeing	Maintaining mental and physical health contributes to personal effectiveness and productivity.
	Communication	Interpersonal and digital communication are vital in people-centric transformations.

RDDCA SKILL GAP ANALYSIS PROCESS

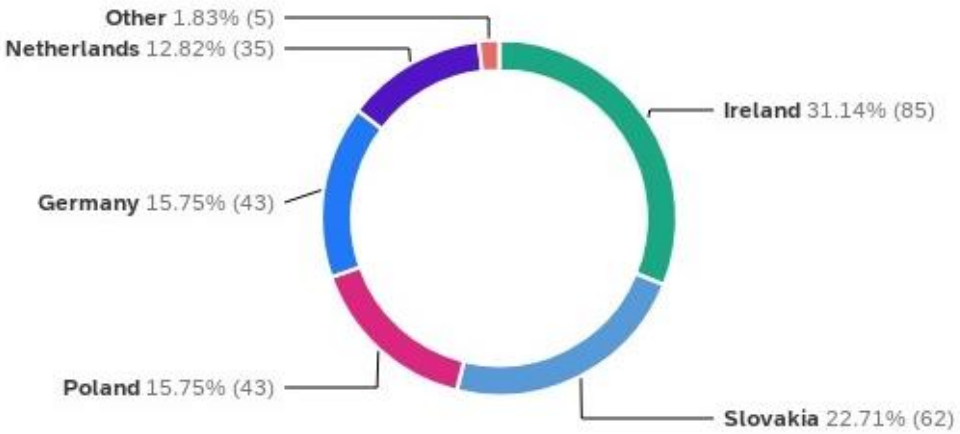
The survey for both target groups was conducted using Qualtrics XM. 345 student responses were recorded and exported for analysis. After data pre-processing and cleaning, 273 survey responses are considered in this analysis report. The methodology followed the steps below:

03



RDDCA SKILL GAP ANALYSIS FINDINGS

REGIONAL DISTRIBUTION OF RESPONDENTS



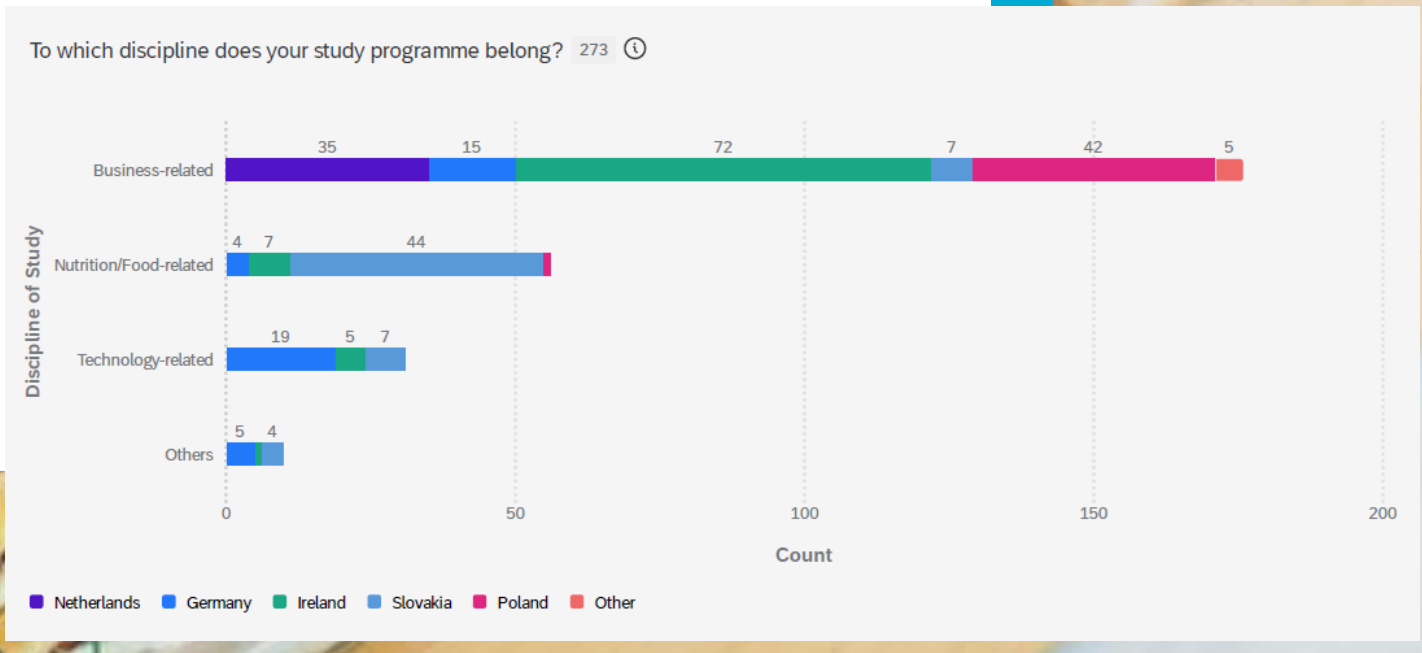
Respondents of the survey are from **6** countries;

Germany (**43**), Ireland (**85**), Netherlands (**35**), Poland (**43**), and Slovakia (**62**). Additionally, a few responses outside of the participating institutions were captured as well – Italy (**5**).

All the responses are from students studying within the European Union, with Ireland having the highest number of respondents. The survey respondents are predominantly from countries with DIGIFABS project consortium partners.

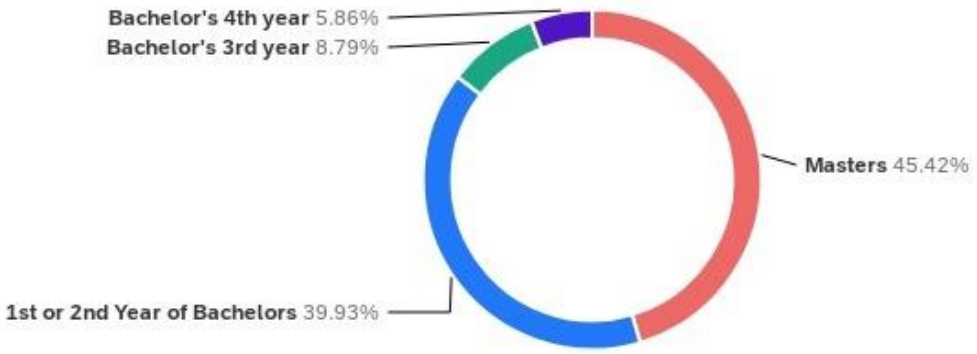
PROGRAMME DISTRIBUTION OF RESPONDENTS

The survey targeted students from three main disciplines, business-related, nutrition and food-related, and technology-related disciplines. The majority of the respondents were from business-related degree programmemes, 66%, once again showing a heavy interest from close stakeholder departments. Students from nutrition and technology-related disciplines were almost equal, with the least number of students being from disciplines unrelated to the specified interest disciplines.



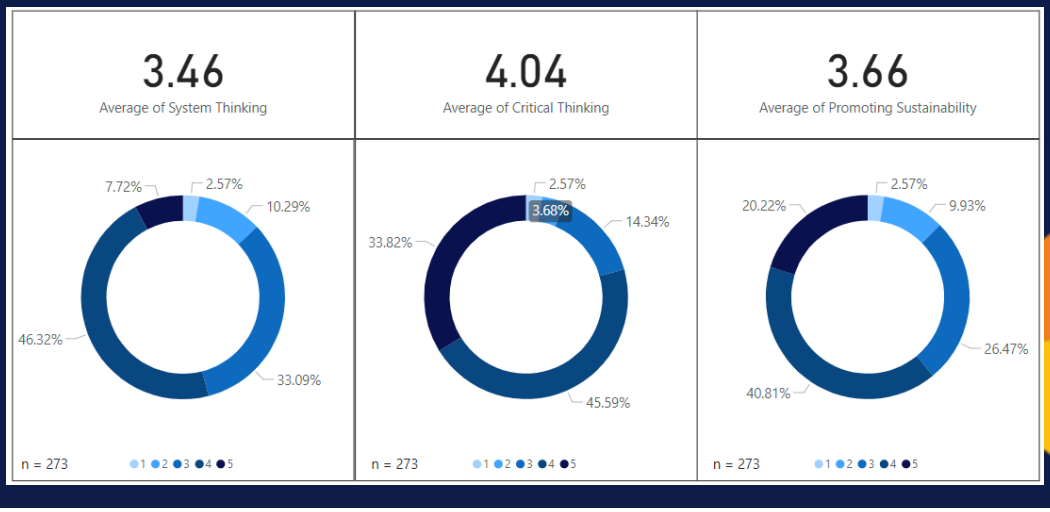
STUDY LEVEL DISTRIBUTION OF RESPONDENTS

The survey was open to students in all levels, from 1st year to post-graduate studies. 45.42% of the respondents are Masters students, and 39.93% are 1st and 2nd year Bachelor's students. However, comparing the study level against the discipline of study (figure 2), it can be noted that most of the students studying business-related programmes are Masters students, while most students studying nutrition-related programmes are 1st and 2nd year students. This suggests a lack of nutrition-related programmes for postgraduate studies, or a lack of uptake of such programmes.



RDDCA DIMENSION:

STRATEGY



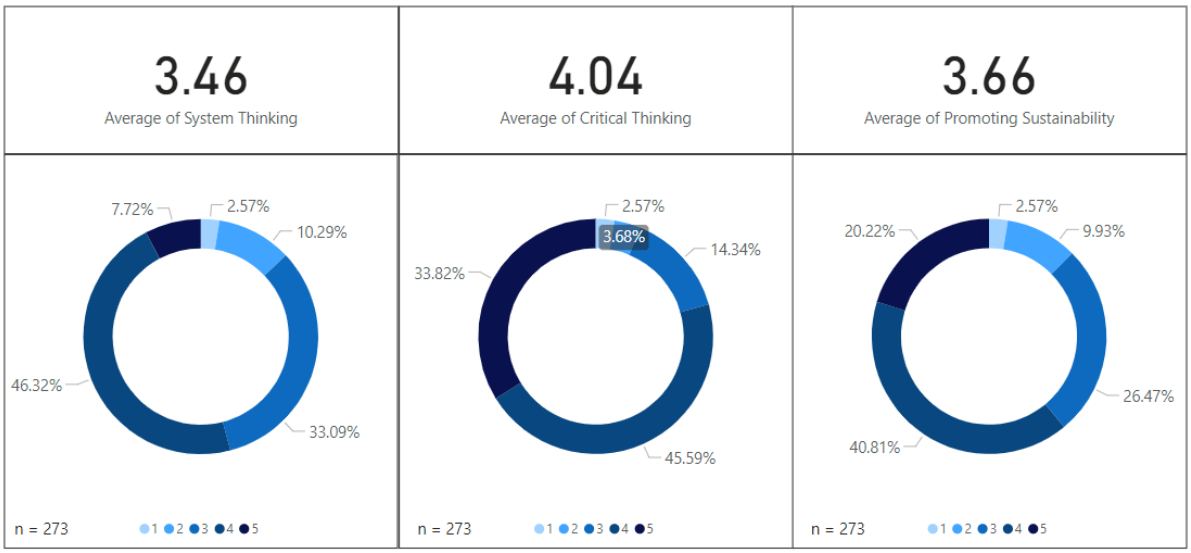
The "Strategy" dimension encompasses the ability to plan, analyse, and execute strategic initiatives effectively. SMEs, educators, and experts emphasise that successful digital transformation requires a well-defined strategy that is deeply aligned with an organisation's vision (refer to the synthesis report). As such, strategy stands out as a core dimension essential for achieving meaningful and sustainable digital transformation.

To evaluate students' skill levels in this dimension, three specific sub-skills were assessed using targeted survey items. Each question was designed to measure a distinct aspect of strategic competency:

1. **Systems Thinking**: "I am able to analyse complex systems and propose sustainable solutions."
2. **Promoting Sustainability**: "I actively promote and value sustainability in decision-making processes."
3. **Critical Thinking**: "I critically evaluate information and arguments before making decisions."

Students responded to these statements using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). This approach provided a nuanced understanding of their self-perceived competencies in strategic thinking. The analysis revealed that students, on average, demonstrated a skill level of **3.73**, indicating a moderate proficiency in the strategy dimension.

RDDCA DIMENSION: STRATEGY



System Thinking

- Systems Thinking is crucial for analyzing complex systems and aligning them with strategic goals, particularly in digital transformation
- Survey results show 46% of students feel confident in their systems thinking, but the average skill level (3.46) is lower than the perceived importance (4.2) from industry experts.
- Bridging this gap requires targeted interventions like enhancing education, integrating real-world experiences, and specialized training to improve both competence and confidence.

Promoting Sustainability

- Sustainability is vital for long-term business strategy and digital transformation, ensuring alignment with organisational goals and societal needs.
- Survey results show 61% of students feel confident in their sustainability skills, but the average self-rating (3.66) is below the industry's perceived importance (4.0), indicating a skill gap.
- Bridging this gap involves enhancing sustainability education through research, module development, and integration with existing content to meet industry standards.

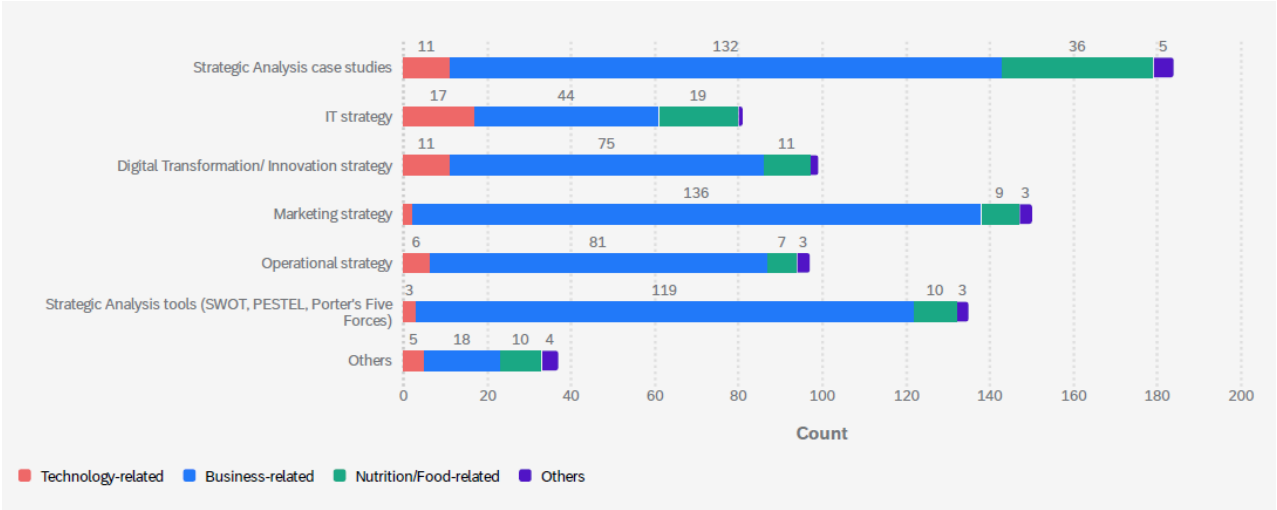
Critical Thinking

- Critical Thinking is crucial for evaluating strategic decisions and ensuring a thoughtful approach to digital transformation.
- 81% of students express confidence in their critical thinking skills, with an average rating of 4.04, though still slightly below the industry's importance score of 4.28.
- Bridging this gap requires refining education through real-world scenarios to strengthen students' critical thinking and better align with industry expectations.

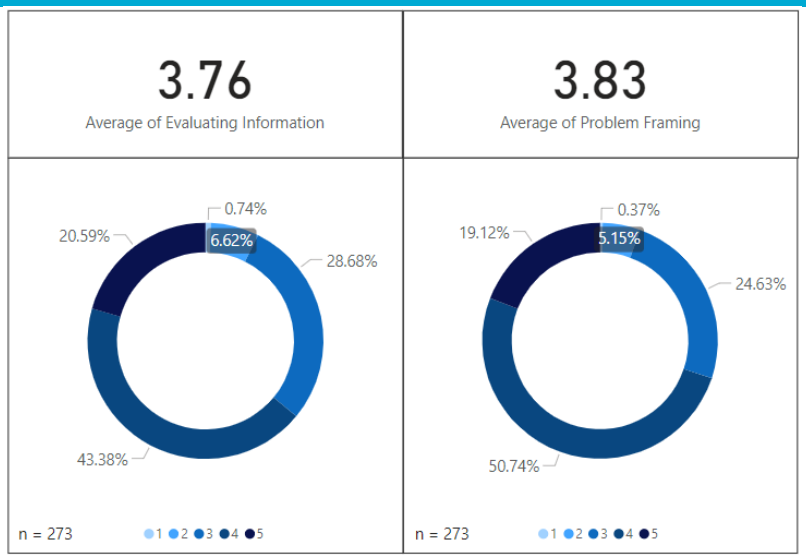
EXPOSURE TO STRATEGY-RELATED COMPETENCIES

To assess the extent of students' exposure to strategy-related topics, a list of potential topics was provided, and students selected those covered in their educational modules.

- Students enrolled in business-related programmes reported the highest coverage of strategy topics in their modules, indicating a strong integration of strategic competencies in these curricula.
- In contrast, students from technology-focused programmes indicated significantly less exposure to strategy-related topics, highlighting a potential gap in the interdisciplinary integration of strategic thinking.
- Of the students enrolled in nutrition-related fields, those in their 1st or 2nd years of studies indicated more exposure to strategy-related topics as compared to those higher up in their studies.



RDDCA DIMENSION: ORGANISATION



Effective "organisation" is critical for managing workflows across all stages—from design and planning to production, sales, and delivery. By optimising productivity and ensuring seamless operations, strong organisational skills play a pivotal role in the success of digital transformation. Effective organisation ensures that every phase of the transformation is well-coordinated and executed without unnecessary delays or bottlenecks, fostering efficiency and alignment with strategic goals.

To evaluate students' skill levels in organisation, two specific sub-skills were assessed through targeted survey items:

Evaluating Information: "I am skilled at assessing the reliability and relevance of information before acting on it."

Problem Framing: "I am able to clearly define and frame problems to find appropriate solutions."

The analysis revealed an average skill level of 3.79 among students, indicating moderate proficiency in organisation. These findings highlight the need to further develop these skills to meet the demands of well-executed digital transformation processes.

Evaluating Information

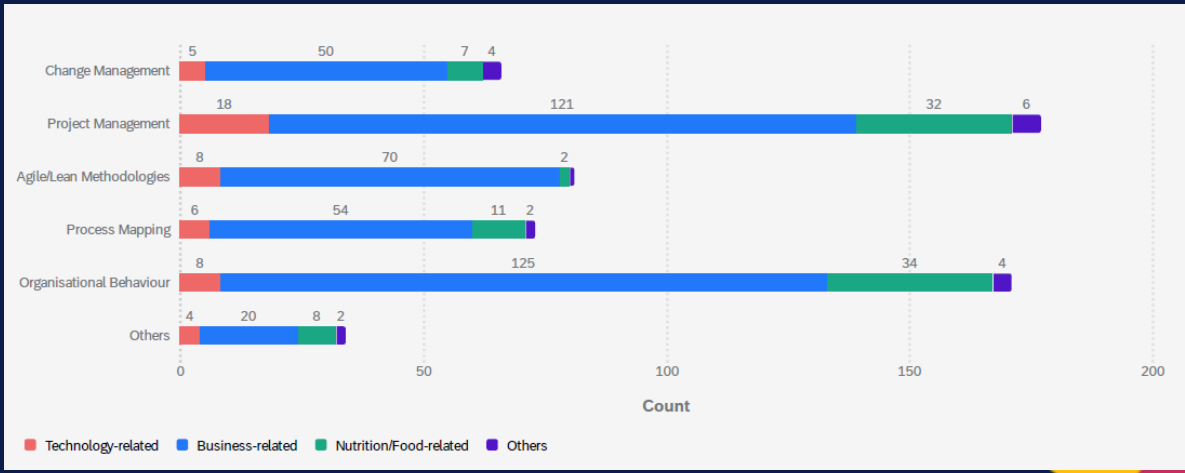
- Evaluating Information is crucial for organisational decision-making, allowing students to assess the relevance and reliability of information.
- 64% of students feel confident in their ability to evaluate information, but the average self-rating (3.76) is slightly below the industry's importance rating (4.0).
- The gap suggests a need for further skill development, with an enhanced curriculum incorporating practical scenarios to improve student proficiency and confidence.

Problem Framing

- Problem Framing is essential for identifying and defining problems, crucial for addressing strategic challenges in digital transformation.
- 70% of students feel confident in their problem framing skills, with an average rating of 3.83, slightly below the industry's perceived importance rating of 4.0.
- The small gap suggests a need for curriculum enhancements, including practical exercises to improve problem-framing abilities and align with industry expectations.

STUDENTS'

ORGANISATIONAL CAPABILITIES



This section assessed students' abilities to contribute to organisational decision-making processes. A majority of students were uncertain about their capabilities, with many selecting the middle response of "somewhat sure". This hesitancy likely reflects the limited professional experience of most students, making it challenging for them to confidently assess organisational capabilities. The average self-assessment score for this section was 3.79.

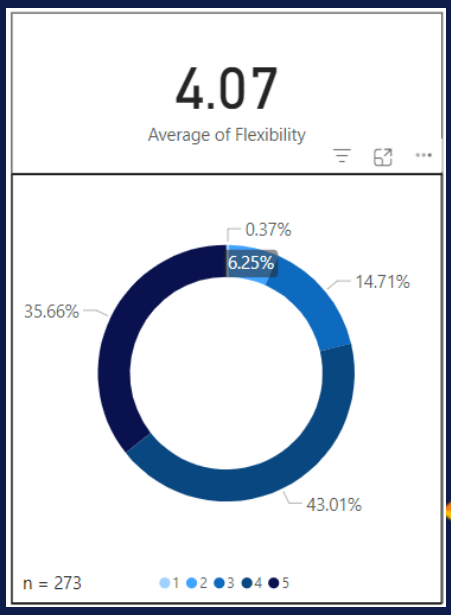
To further understand students' experience within organisational structures, they were asked to respond to the statement: "I have experience working in organized teams with clearly defined roles and objectives." Results showed that 75% of respondents have experience in such environments, highlighting a baseline understanding of team dynamics and role clarity among the majority.

Students reported varying levels of knowledge about organisation-related topics. Project management and organisational behaviour were the most recognized, with over 63% of students indicating familiarity. Conversely, less than 30% of students were knowledgeable about topics like process mapping and change management, signalling gaps in exposure to critical organisational skills.

The figure illustrates that students enrolled in business-related programmes reported significantly greater coverage of organisation-related topics in their coursework compared to those in other fields. This trend mirrors findings in strategy-related topics, emphasizing the stronger integration of organisational knowledge in business curricula.

RDDCA DIMENSION:

CULTURE



Culture plays a pivotal role in the digital transformation of any sector, as it fosters a willingness among individuals to embrace digital technologies. Digital transformation requires adopting new methods and processes, often accompanied by significant change. Since change can evoke fear and resistance, the ability to adapt and embrace uncertainty is crucial for achieving successful digital transformation outcomes. To evaluate students' skills in the culture dimension, they were presented with the following statement:

Flexibility: "I am able to adapt to changes and challenges with ease."

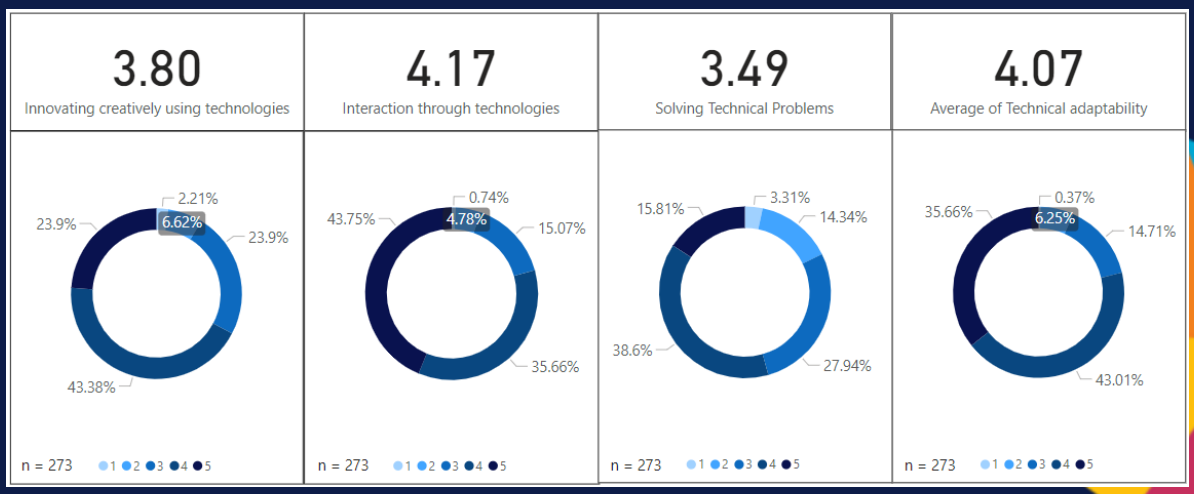
Students responded to this statement using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The analysis revealed an average student rating of 3.79, indicating a moderate level of flexibility. This suggests that while students feel reasonably confident in their ability to adapt to change, there is room for growth to ensure they are fully prepared to meet the challenges of dynamic digital transformation environments.

Adaptability to Change is a cornerstone of fostering a culture that embraces transformation and innovation. Flexibility, in this context, refers to students' ability to adjust to new ways of working and operating during digital transformation. The results show that the majority of students (79%) rated their proficiency at 4 or 5, indicating a strong sense of confidence in their flexibility skills. However, 21% of students rated their proficiency at 3 or below, suggesting that there is still some room for improvement in this area.

Flexibility was identified as the most critical skill by industry experts, receiving the highest average importance rating of 5.0. While students' self-assessed average of 4.07 demonstrates a high level of confidence in their adaptability, the gap between industry expectations and student self-assessment, though small, remains notable. This highlights an opportunity to further enhance students' flexibility through targeted training and experiential learning, ensuring alignment with industry standards.

RDDCA DIMENSION:

TECHNOLOGY



The "Technology" dimension is a fundamental pillar of digital transformation, as it underpins the ability to adopt, adapt, and innovate with digital tools and systems. To assess students' proficiency in this dimension, four sub-skills were evaluated through targeted survey items:

1. Interaction through Technologies: "I am proficient at using digital tools to communicate and collaborate with others."

2. Innovating Creatively Using Technologies: "I use technology creatively to develop innovative solutions to problems."

3. Solving Technical Problems: "I am capable of identifying and solving technical problems effectively."

4. Technical Adaptability: "I can easily adapt to new digital tools and technologies as they emerge."

Students responded to these statements using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The analysis revealed an average skill level of 3.89, indicating a moderate-to-high level of confidence in their technological capabilities. These results highlight that while students generally feel adept in this area, there is room for further skill enhancement to ensure they are fully prepared to meet the demands of digital transformation in professional settings.

RDDCA DIMENSION: TECHNOLOGY

Interaction through technologies

This skill focuses on the effective use of digital tools for communication and collaboration, a critical component in digital transformation efforts. Given that digital transformation often involves adopting new technologies for various purposes, including communication, proficiency in this skill is essential. Students who excel in this area are likely to adapt quickly, minimizing the learning curve and accelerating the implementation of digital transformation initiatives.

The survey results indicate a strong level of confidence among students in their ability to use digital tools for communication. The average score for this skill is 4.17, with 44% of students rating their proficiency at the highest level (5), demonstrating strong confidence, and an additional 36% rating their skills at level 4, indicating a solid level of competence.

Interestingly, the student's average score of 4.17 surpasses the industry's perceived importance score of 4.0. This suggests that students feel highly confident in their ability to interact with technologies, potentially even more so than what the industry considers necessary. This elevated confidence can likely be attributed to the increased digitisation of education systems, particularly within higher education, where digital tools are frequently integrated into learning processes.

Innovating creatively using technologies

Innovating Creatively Using Technologies involves leveraging technology to develop innovative solutions that align with transformation strategies. This skill is crucial, as successful digital transformation often hinges on identifying and utilising the most suitable technological tools for specific scenarios. The ability to align technology with strategic goals can be the determining factor between the success and failure of digital transformation processes.

The average student score for this skill is 3.8, indicating that most students feel confident in their ability to use digital tools to address challenges creatively. A significant portion of students (67%) rated their proficiency at 4 or 5, reflecting a strong level of confidence. However, 33% rated their proficiency at 3 or below, highlighting an opportunity to further enhance this skill among all students.

When compared to the industry's perceived importance score of 4.0, the student self-assessment average of 3.8 reveals a slight gap. This suggests that while students are reasonably confident in their ability to innovate with technology, their skills may not yet fully align with industry expectations. Addressing this gap will require targeted initiatives, such as hands-on projects and training programmes, to enhance students' creative application of technology and ensure they are better prepared to meet industry standards.

RDDCA DIMENSION: TECHNOLOGY

Solving technical problems

Solving Technical Problems is a crucial skill for ensuring smooth technological operations during the digital transformation process. Proficiency in this area minimises disruptions caused by technical issues and ensures that any problems that arise are addressed efficiently and effectively.

Among the four technology-related skills evaluated, solving technical problems received the lowest average score of 3.5, indicating it is the area where students feel the least confident. Specifically, 16% of students rated their proficiency at the highest level (5), while 39% rated themselves at level 4. However, a significant 45% of students rated their proficiency at level 3 or below, underscoring the need for improvement in this critical area.

The students' self-assessment score of 3.5 is notably lower than the industry's perceived importance score of 4.0, highlighting a clear skill gap. While students show some confidence in their ability to solve technical problems, this gap indicates the need for more targeted training and practical experience to better align their competencies with industry standards.

To address this gap, schools could integrate IT-focused short courses, such as Cisco's CCNA certification for basic troubleshooting, into their curriculum. These courses would provide students with the hands-on experience necessary to develop strong technical problem-solving skills, ensuring they are better prepared to meet industry demands.

Technical adaptability

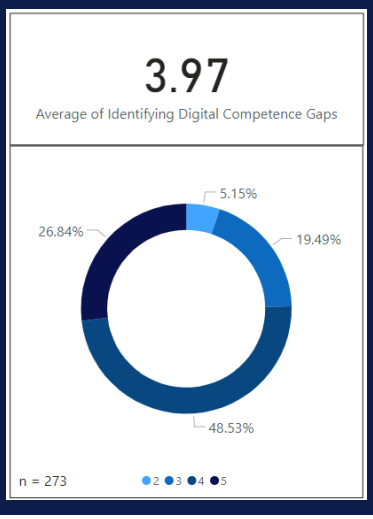
Technical Adaptability refers to students' ability to adjust to new tools and technologies, a critical skill for ensuring effective technology adoption during digital transformation efforts.

Survey results indicate that the majority of students (79%) rated their proficiency at 4 or 5, demonstrating strong confidence in their technical adaptability. However, 21% of students rated their proficiency at 3 or below, highlighting an opportunity for further improvement in this area.

The skills gap for technical adaptability is minimal. The industry perceives its importance at 4.0, while students' self-assessment is slightly higher at 4.1. This suggests that students feel very confident in their ability to adapt to evolving technologies—slightly exceeding industry expectations. This positive alignment indicates that students are well-prepared and capable of adapting to technological advancements, a key competency for navigating the demands of digital transformation.

RDDCA DIMENSION:

RESOURCES



The **Resource** dimension is critical for digital transformation as it focuses on the ability to identify and allocate the necessary resources, including personal digital skills, to achieve strategic goals effectively. To evaluate students' skill levels in this dimension, they were presented with the following statement:

Identifying Digital Competence Gaps: "I can identify areas where I need to improve my digital skills and competencies."

Students responded using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The analysis revealed an average student skill level of 3.97, indicating that most students feel confident in their ability to recognize gaps in their digital competencies. This suggests a solid foundation in self-awareness regarding skill improvement, a crucial step in resource optimization for digital transformation.

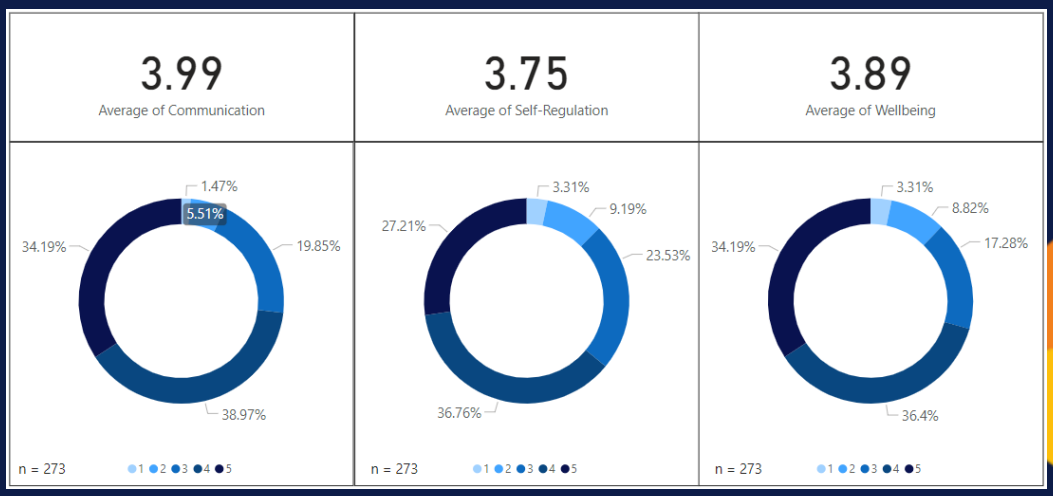
Identifying Digital Competence Gaps is a critical skill that facilitates the allocation of resources toward training and development in digital competencies. This ability enables organisations to proactively address skill shortages and stay ahead during the digital transformation journey.

The average student score for this skill is 4.0, indicating that students are highly capable of recognising areas where they need to improve their digital skills and competencies. The majority of students (76%) rated their proficiency at 4 or 5, while a smaller percentage (24%) rated themselves at 3 or below, highlighting a need for growth among a minority.

As with technical adaptability, the skills gap for identifying digital competence gaps is minimal. The industry perceives this skill as highly important, assigning it a score of 4.0, while students' self-assessment averages slightly lower at 3.97. This close alignment suggests that students are confident in their ability to identify digital competence gaps, nearly meeting industry expectations. While the gap is small, there is still slight room for improvement, which could be addressed through continued focus on self-assessment and targeted development programmes.

RDDCA DIMENSION:

PEOPLE



The "People" dimension is vital for the digital transformation of the sector, as it focuses on essential interpersonal and intrapersonal skills that enable individuals to navigate and thrive during periods of change.

1. **Self-Regulation:** "I can effectively regulate my emotions, thoughts, and behaviours during challenging situations."
2. **Wellbeing:** "I prioritise my mental and physical wellbeing in my daily activities."
3. **Communication:** "I am effective at communicating both in-person and through digital platforms."

Students responded to these statements on a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The results revealed an average skill level of **3.87**, indicating that students generally feel confident in their ability to manage emotions, prioritise well-being, and communicate effectively. These skills are crucial for fostering resilience and collaboration, both of which are integral to successful digital transformation processes.

RDDCA DIMENSION: PEOPLE

Self-regulation

Self-regulation refers to the ability to manage personal emotions, thoughts, and behaviours, a skill essential for personal growth and adaptation in a rapidly transforming environment. This makes self-regulation critical for navigating the challenges of the digital transformation journey.

The average rating for this skill was 3.75, indicating that while most students feel somewhat capable of managing their emotions and behaviour, their proficiency is not exceptionally strong. Specifically, 64% of students rated their self-regulation skills at 4 or 5, with 27% assigning the highest rating (5) and 49% rating their proficiency at 4. However, 36% of students expressed a lack of confidence in their self-regulation skills, rating themselves at 3 or below.

The industry perceives self-regulation as highly important, assigning it a score of 4.0, slightly higher than the students' self-assessment average of 3.75. This gap suggests that while students generally feel confident in their ability to regulate emotions, thoughts, and behaviours, their proficiency does not fully meet industry expectations. Addressing this discrepancy may require targeted support and training programmes to help students further develop their self-regulation skills and align more closely with professional standards.

Wellbeing

Wellbeing is a critical skill within the "People" dimension, emphasizing the importance of maintaining mental and physical health for personal effectiveness and productivity.

The average student rating for this skill was 3.9, indicating that most students feel confident in their ability to prioritise wellbeing. Specifically, 70% of students rated their proficiency at 4 or 5, reflecting a strong recognition of the importance of mental and physical health. However, 30% of students rated their proficiency at 3 or below, highlighting an opportunity to further promote the importance of wellbeing among all students.

The skills gap for wellbeing is small but noteworthy. The industry assigns a perceived importance score of 4.0, while students' self-assessment average is slightly lower at 3.89. This slight discrepancy suggests that while students are generally well-prepared to maintain their wellbeing, there is still room for improvement. Enhancing educational programmes to emphasise the value of mental and physical health and providing resources for self-care could help students fully align with industry expectations and sustain their personal and professional effectiveness.

Communication

Communication Skills are essential for successful digital transformation, particularly in people-centric processes where both interpersonal and digital communication play a pivotal role. Survey results show that the majority of students (73%) rated their communication proficiency at 4 or 5, indicating a high level of confidence in their skills. However, 27% of students rated their proficiency at 3 or below, suggesting there is still room for improvement in ensuring all students feel equipped with strong communication abilities.

SMEs, educators, and experts rate the importance of communication skills at 4.0, while students' self-assessment is slightly lower, at 3.99. This small gap suggests that while students generally feel confident in their communication abilities, there is still an opportunity to further enhance these skills to fully meet industry expectations.

04

KEY FINDINGS

RDDCA SKILL GAPS BASED ON CORE DIMENSIONS

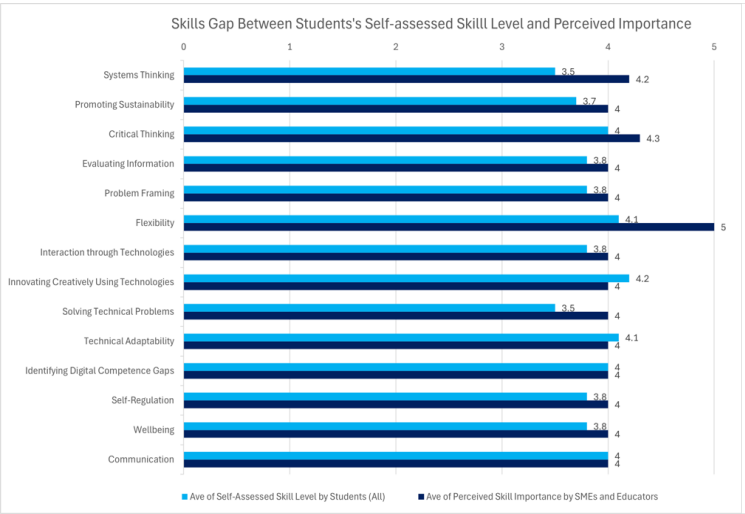
The successful digitisation of the F&B industry hinges on strong collaboration between academia and industry. Industry stakeholders must trust that potential employees are equipped to effectively utilise the digital tools and technologies in which businesses invest. With this in mind, the skills critical for driving digitalisation in the F&B industry were analysed, revealing significant skill gaps between students' self-assessments and the skills perceived as most important by SMEs and educators. Figure 14 shows the comparison between these two scores.

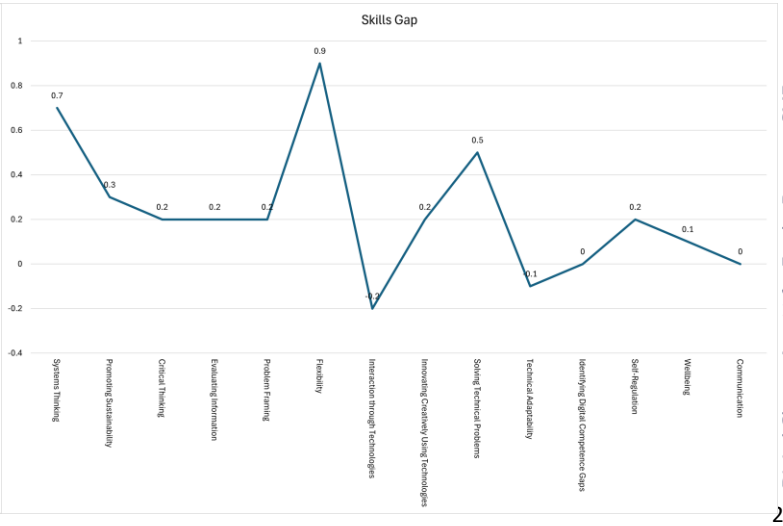
The most pronounced skill gap identified was in flexibility, a skill rated as the highest priority for digital transformation by SMEs and educators. Flexibility, particularly in embracing cultural and organisational change, is essential for navigating the dynamic demands of digital transformation. Despite students expressing confidence in their flexibility, this skill still displayed the largest gap, underscoring the need for targeted educational interventions. Incorporating topics that enhance adaptability and readiness for change into educational programmes is critical for bridging this gap.

The next most significant gap was in the strategy dimension, particularly in systems thinking and promoting sustainability. These skills are fundamental to strategic planning and long-term decision-making in digital transformation. Notably, the strategy was ranked as the second most important dimension by SMEs and educators. To address this, higher education institutions should develop tailored courses that embed strategic competencies across disciplines, ensuring that students acquire these vital skills regardless of their field of study.

Interestingly, students rated themselves higher than SMEs and educators' expectations in their interaction through technologies. This skill, which reflects proficiency in utilising information and communication technologies (ICT), has been strengthened by the widespread integration of digital tools in higher education, particularly during the COVID-19 pandemic. This development highlights the advanced state of digital transformation within academia, positioning students as well-prepared in this area, often surpassing industry requirements. However, the third highest skill gap is solving technical problems. This might suggest that the digital transformation process in the educational sector is still ongoing, with the foundations firm on technology use and access. The next step might be addressing the skills to solve the technical problems that arise from this wide use of technologies.

These findings emphasise the importance of aligning academic curricula with industry demands to bridge critical skill gaps and prepare students as effective contributors to the F&B sector's digital transformation journey.





DIFFERENCES IN SKILL GAPS BASED ON EDUCATION LEVEL

The figure below highlights the skill gaps between students at different stages of their higher education journey, comparing those at the beginning with those nearing completion. The analysis shows that students further along in their education consistently rate themselves as more proficient in most skills compared to those in their first and second years.

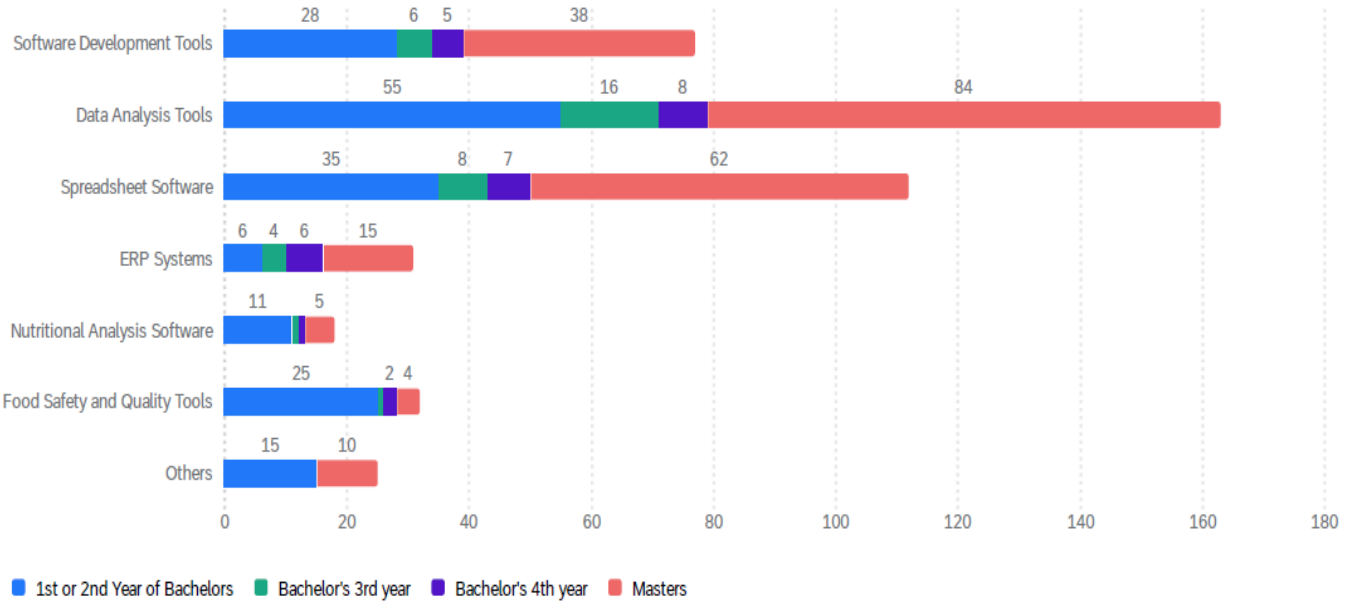
Interestingly, first- and second-year students self-assessed higher proficiency in communication and wellbeing skills. These skills, often developed outside the formal educational curriculum, rely more on personal experiences and external influences. However, for skills like critical thinking and systems thinking—both integral to strategic and analytical capabilities—students nearing the completion of their studies demonstrate significantly higher proficiency. These skills are typically embedded within the educational curriculum and are refined as students progress through advanced coursework and practical applications.

This disparity underscores the potential of a well-structured educational curriculum to cultivate critical competencies over time. It also highlights the need to address skill gaps identified by SMEs and educators by ensuring that foundational and advanced training in key skills is integrated more effectively throughout the entire educational journey.

CURRENT TECHNOLOGICAL COMPETENCIES

The survey results indicate that students demonstrate the highest competency in data analytics tools, likely reflecting the large proportion of respondents studying business-related courses where data analytics plays a critical role. Conversely, the least utilised technology is nutritional analysis software, which is highly specialized and primarily relevant to nutrition and food-related programmes—areas represented by relatively fewer students in the survey.

Notably, students reporting advanced knowledge of technological tools are predominantly master's students, many of whom possess industry experience, further enhancing their familiarity and proficiency with these tools.



05

CONCLUSION

CONCLUSION

The survey analysis highlights critical gaps between students' self-assessed digital skills and the skills perceived as essential by SMEs and Educators in the Food and Beverage (F&B) sector. While students demonstrate confidence in areas such as digital communication, technical adaptability, and wellbeing, notable deficiencies exist in flexibility, systematic thinking, and problem-solving abilities. This skill gap analysis is essential for the DIGIFABS project for several reasons:

→ **Identifying Priority Areas**: The analysis pinpoints critical competencies—such as strategic thinking, adaptability, and technical problem-solving—that require immediate focus to align students' skills with industry expectations.

→ **Evidence-Based Curriculum Design**: The findings provide a robust evidence base for shaping the content of the DIGIFABS summer school modules. This ensures the programme directly addresses the identified gaps, fostering skillsets that are both practical and industry-relevant.

→ **Enhancing programme Impact**: By tailoring the training to bridge these gaps, the DIGIFABS initiative can better prepare students to serve as Responsible Dynamic Digital Change Agents (RDDCAs), equipped to lead digital transformation in SMEs.

→ **Supporting Strategic Objectives**: The skill gap analysis aligns with the project's overarching goal of fostering innovation, resilience, and sustainability within the F&B sector. Addressing these gaps directly enhances the capability of future professionals to contribute effectively to sector-wide digital transformation.

→ **Strengthening Stakeholder Engagement**: The analysis provides tangible data that resonates with educators, SMEs, and students, fostering trust in the programme's ability to deliver meaningful and transformative educational outcomes.

This analysis forms the basis for the WP4, which is the design and development of the SMEs Bootcamp, Summer Scholl and SMEgoesDigital Challenge. The highlighted skills gap will be instrumental in the structuring of the content of these activities. The delivery mode will also be influenced by the particular skill gap being intended to be addressed. The skill gap analysis is thus a cornerstone of the DIGIFABS project, informing the design and delivery of the summer school and bootcamp modules. It ensures that the programme not only equips participants with the theoretical and practical knowledge needed for digital transformation but also aligns these skills with the specific needs of the F&B industry. This alignment is crucial for empowering students, educators, and SMEs to collaboratively address the challenges and opportunities of the digital era.

REFERENCES

Barbazette, J. (2006). Training Needs Assessment: Methods, Tools, and Techniques. San Francisco, CA: Pfeiffer.

Becker, G. S. (1964). Human Capital: A Theoretical and Empirical Analysis, with Special Reference to Education. Chicago, IL: University of Chicago Press.

Browder, R. E., Dwyer, S. M., & Koch, H. (2024). Upgrading adaptation: How digital transformation promotes organisational resilience. Strategic Entrepreneurship Journal, 18(1), 128-164.

Chalmers University. (2024). Bridging Skill Gaps: A Systematic Literature Review. Retrieved from https://research.chalmers.se/.

Daminov, A., Miftakhov, E., & Mustafina, S. (2021, September). SaaS is the service for solving problems of chemical kinetics. In 2021 International Conference on Information Technology and Nanotechnology (ITNT) (pp. 1-4). IEEE.

Responsible Dynamic Digital Change Agents for Food And Beverage SMEs (DIGIFABS, Project ID: 101140130). (2024). WORKPACKAGE 3 – INVESTIGATION SYNTHESIS REPORT

Spencer, L. M., & Spencer, S. M. (1993). Competence at Work: Models for Superior Performance. New York, NY: Wiley.

DIGIFABS

Digital Change Agents for Food + Beverage SMEs

Follow Our Journey

www.digifabs.eu

Co-funded by the European Union

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them