

Student ID

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Ideation

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INTRODUCTION:

Creativity is a mindset, an identity that we hold about ourselves. It is having the quality or function of creating. Creativity requires change to bring about something new, an idea, a process, a solution, an object. It allows us to adapt, to solve problems, and to learn new things[1].

Innovation is the process of creating and implementing new ideas, products, services, or methods that improve existing solutions or solve problems more effectively. It involves applying creativity and knowledge to generate value for individuals, businesses, and society. Innovation can be technological, social, environmental, or organizational and is often a key driver of economic growth and development.

It is a new idea or method, or the use of new ideas and methods.

It is creating your ideas plus commercialization.

Innovation has significantly changed the world by transforming the way people live, work, communicate, and access services. For example, the internet revolutionized communication by connecting people globally and providing instant access to information. Smartphones combined communication, entertainment, education, and business tools into a single device, changing daily life for billions of people. In healthcare, innovations such as telemedicine and advanced medical technologies have improved diagnosis, treatment, and patient care. Renewable energy technologies, including solar panels and wind turbines, have provided cleaner alternatives to fossil fuels and helped reduce greenhouse gas emissions. Artificial Intelligence in study where tools like OpenAI ChatGPT and AI tutors changed how students learn, research, write, and revise work making learning became faster and more personalized [2].

Food delivery and smart cooking where Apps such as Uber Eats and air fryers transformed cooking and eating habits. People can order almost any meal instantly or cook healthier food more quickly at home.

Streaming Entertainment Platforms like Netflix and Disney streaming services replaced DVDs and traditional TV for millions of people, changing how movies and shows are watched worldwide.

Video Communication Apps such as Zoom and Microsoft Teams became essential for online classes, remote work, and keeping families connected, especially after the COVID-19 pandemic.

Short-Form video content such as TikTok changed entertainment and communication with short videos that spread trends, news, education, and music globally within hours.

Innovation also plays a vital role in addressing global sustainability challenges. Sustainable innovations focus on meeting current needs without compromising the ability of future generations to meet theirs. Examples include electric vehicles that reduce dependence on fossil fuels, biodegradable packaging that minimizes plastic pollution, and smart agriculture systems that improve food production while conserving water and energy.

While innovation alone may not completely "save the world," it is one of the most powerful tools available for addressing environmental, social, and economic challenges. Its effectiveness depends on how responsibly it is developed and implemented. Innovations that prioritize sustainability can help combat climate change, reduce waste, improve resource efficiency, and enhance quality of life. Therefore, innovation has the potential to contribute significantly to a more sustainable future by creating solutions that balance economic progress, environmental protection, and social well-being.

REFERENCES:

- [1] Sawyer, "Explaining Creativity: The science of human innovation," 2024.
- [2] J. Von Garrel, "The use of Artificial Intelligence in studies," 2023.

Ideation & Mind-map

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TASK1: IDEATION & MIND-MAP

FUTUREBAKES (FB)

(Reinventing Pastry for a smarter, healthier & sustainable world)



IDEATION

FutureBake is an innovative pastry business designed to transform the global baking industry through technology, sustainability, health-conscious products, and community empowerment. The business combines modern food science, artificial intelligence, eco-friendly practices, and digital experiences to create pastries that are healthier, more accessible, and environmentally responsible.

MIND-MAP

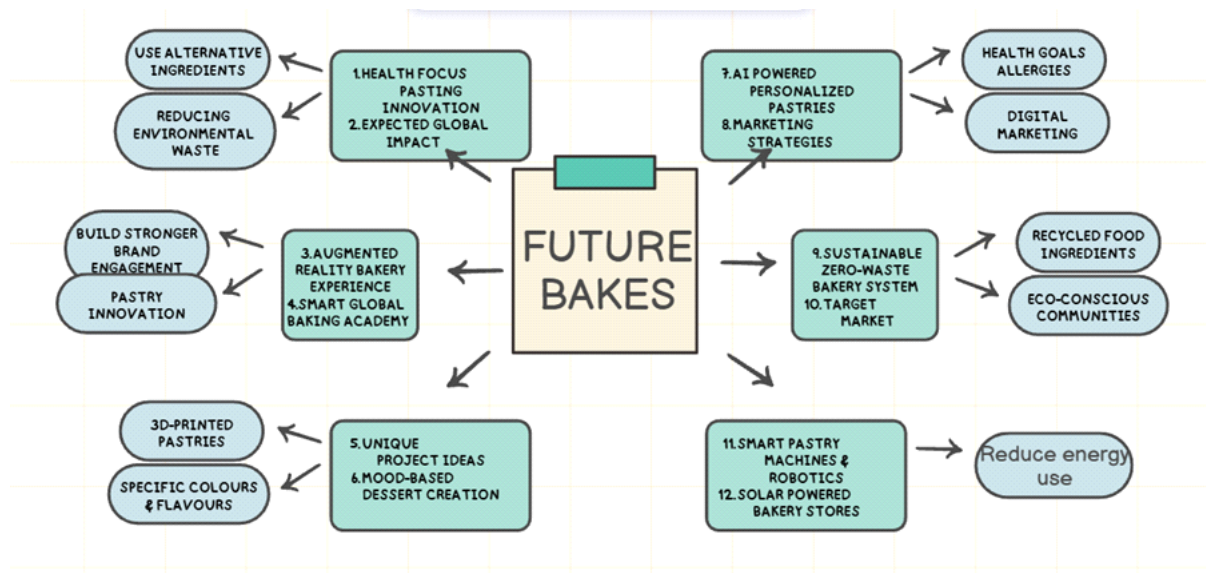


Fig 1: Showing Mind-map of FutureBakes

AI-Powered Personalized Pastries

Developing an AI system that recommends pastries based on health goals, allergies, mood, fitness lifestyle or cultural preferences [3]

Sustainable “Zero-Waste” Bakery System

Creating pastries using recycled food ingredients, unsold fruits from farms and smart inventory tracking to convert leftover bread into pastry crumbs [4], dessert toppings and cake bases will reduce food waste globally and lower production costs.

Smart Pastry Machines & Robotics

Using robotic baking systems and smart ovens that control temperatures automatically, improve consistency and reduce energy [5]. With these customers can watch robots prepare pastries live, enhance faster production, reduce human error and for unique customer attraction.

Health-Focused Pastry Innovation

Use alternative ingredients such as oat flour, plant-based cream and natural sweetness to make protein croissants, vitamin-enriched cakes, diabetic-friendly pastries and vegan luxury desserts to support healthier lifestyles and help people with dietary restrictions.

Augmented Reality (AR) Bakery Experience

Customers can scan pastries using smartphones to view ingredient origins, watch preparation videos, access nutrition information and join interactive baking games to create immersive customer experiences, build stronger brand engagement and appeals to younger generations.

Unique Project Ideas

“Pastry for Good” Initiative, for every pastry sold, donate meals to communities in need, support food education programmes, introduce customized 3D-printed dessert designs for weddings, events and personalized gifts [6].

Solar-Powered Bakery Stores

Operate eco-friendly bakery branches powered by renewable energy.

Smart Global Baking Academy

Launch an online learning platform teaching on pastry innovation, AI in food business and sustainable baking.

Mood-Based Dessert Creation

Use customer mood selections to create pastries with specific colours, flavours, aromas, designs. For example, Calm mood → lavender pastries Energy mood → citrus desserts.

Target Market

Concentrate on target market strategies like young professionals, health-conscious consumers, families, luxury dessert lovers, eco-conscious communities.

Marketing Strategy

Practice digital Marketing using social media campaigns, influencer partnerships, interactive dessert content, viral pastry designs.

Expected Global Impact

This project can help shape the world by encouraging healthier eating habits reducing environmental waste, creating jobs in food innovation, supporting global food sustainability, combining technology with culinary creativity.

REFERENCES:

[3] K. Stefanidis et al., "PROTEIN AI Advisor: A Knowledge-Based Recommendation Framework Using Expert-Validated Meals for Healthy Diets," *Nutrients*, vol. 14, no. 20, pp. 4435–4435, Oct. 2022, doi: <https://doi.org/10.3390/nu14204435>.

[4] G. Manuel and M. M. Martinez, *Redistribution of surplus bread particles into the food chain*. 2023.

[5] Y. B. Wakchaure, B. K. Patle, and S. Pawar, *Prospects of robotics in food processing*. 2023.

[6] B. Yang, *Design and manufacture of customized products based on 3D technology*, 2021.

Aims & Objectives

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AIMS:

The aim of Future Bake is to transform the global pastry and baking industry by combining innovation, sustainability, technology, and health-conscious food solutions to create a smarter, more efficient, and environmentally responsible pastry business that improves customer experience and promotes global food sustainability.

OBJECTIVES:

To develop innovative pastry products that combine taste, nutrition, and modern food technology to meet changing consumer needs [7].

To introduce sustainable baking practices that reduce food waste [8], minimize environmental impact, and encourage ethical sourcing of ingredients.

To implement smart technologies such as artificial intelligence, automated baking systems, and digital ordering platforms to improve efficiency and customer personalization [9].

To create healthier pastry alternatives, including low-sugar, vegan, protein-rich, and allergy-friendly products for diverse customer groups.

To design interactive customer experiences using digital tools such as augmented reality and mobile applications to improve engagement and brand loyalty.

To establish a global online baking academy that provides education and training in modern pastry innovation and sustainable baking methods.

To support community development by creating employment opportunities, promoting food education, and contributing to hunger reduction initiatives through social responsibility programs.

To position FutureBake as a globally recognized leader in innovative and sustainable pastry production.

REFERENCES:

[7] R. P. et al Guine, "The link between the consumer and the innovations in food products development."

[8] J.-M. et al Jung, "Zero waste strategy by means of valorization of bread waste," 2020.

[9] P. F. Rinshana et al, "Advances in 3D food printing technology, innovation and application in the food industry," 2025.

Research Philosophy

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RESEARCH PHILOSOPHY:

An appropriate research philosophy for the FutureBake project is pragmatism. Pragmatism focuses on using practical solutions, real-world experiences, and flexible research methods to solve problems and achieve project goals. This philosophy is suitable for FutureBake because the project combines technology, sustainability, customer behaviour, health innovation, and business development within the pastry industry.

Pragmatism allows the use of both qualitative and quantitative research methods.

Qualitative methods such as interviews [10], customer feedback, and market observations can help understand customer preferences, food trends, and consumer experiences.

Quantitative methods such as surveys, sales analysis, and statistical data can measure customer satisfaction, product demand, and business performance.

The philosophy supports innovation by encouraging experimentation and continuous improvement.

FutureBake aims to develop healthier pastries, smart baking technologies, and sustainable business practices, which require flexible and solution-oriented research approaches.

Pragmatism is also valuable because it focuses on outcomes and practical impact rather than relying only on theories. This helps the business make informed decisions about product development, sustainability strategies, and digital customer experiences. Therefore, Pragmatism is the most appropriate philosophy for supporting the innovative and global objectives of the FutureBake project.

REFERENCE:

[10] N. et al Sardana, "Qualitative and quantitative research methods," 2023.

Search Tools, Research Databases & Search Strategies

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SEARCH TOOLS, RESEARCH DATABASES, AND SEARCH STRATEGIES

To identify relevant research for the FutureBake project, several academic search tools and databases can be used to gather reliable information on food innovation, sustainability, artificial intelligence, customer behaviour, and bakery management. Important search tools include Google Scholar, which provides access to academic articles, journals, and conference papers, and ResearchGate, which contains research publications and industry studies. Additional databases such as ScienceDirect, SpringerLink, and JSTOR can provide peer-reviewed research related to food technology, sustainability, and business innovation.

Specific industry resources such as Mintel and Statista can also provide market trends, consumer insights, and bakery industry statistics.

Effective search strategies include the use of keywords and Boolean operators such as AI in bakery industry, sustainable pastry production, smart food technology and customer experience, and healthy dessert innovation or vegan pastries.

Filters such as publication year, peer-reviewed articles, and subject categories should be applied to improve relevance and accuracy. These strategies help FutureBake gather credible information for innovation, decision-making, and business development.

Research Strategies

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RESEARCH STRATEGIES:

Strategies to Enhance Validity, Reliability, Generalisability, and Ethical Considerations for the FutureBake Project

To ensure the quality and credibility of the FutureBake project, strategies should be implemented to enhance validity, reliability, generalisability, and ethical compliance.

Validity can be improved by collecting data from relevant sources such as customers, bakery professionals, food technologists, and sustainability experts. Using well-designed questionnaires and interview questions that directly address the project objectives will help ensure that the research measures what it intends to measure [11].

Reliability can be enhanced by using consistent data collection methods and standardized research instruments. Surveys should be administered under similar conditions, and data analysis procedures should be documented clearly so that the research can be replicated and produce similar results over time [12].

Generalisability can be improved by gathering data from a diverse sample of participants, including customers of different ages, backgrounds [13], and dietary preferences. Research conducted across multiple locations or market segments will increase the likelihood that findings can be applied to a broader population within the bakery industry.

Ethical considerations are essential throughout the project. Participants should provide informed consent before taking part in surveys or interviews. Personal information must be kept confidential and stored securely [14]. Participation should be voluntary, and respondents must have the right to withdraw at any stage. These measures ensure that the research is conducted responsibly, fairly, and professionally.

Research Strategies, Data Collection Methods, and Pilot Study for the FutureBake Project

To collect data for the FutureBake project, a mixed-methods research strategy will be used, combining both quantitative and qualitative approaches [15].

Quantitative data can be collected through online surveys to measure customer preferences, demand for healthier pastries, attitudes toward sustainable packaging, and interest in AI-driven personalization. Qualitative data can be gathered through interviews and focus groups with customers, bakery owners, and food industry experts to gain deeper insights into consumer expectations and emerging trends.

A pilot data collection method will be conducted using a short online questionnaire distributed to 15–20 potential customers. Sample questions may include the following:

How often do you purchase pastries?

Would you buy healthier or low-sugar pastry products?

How important is sustainability when choosing a bakery?

Would personalized pastry recommendations interest you?

What innovative bakery features would attract you most?

Initial feedback from pilot participants may indicate strong interest in healthier pastry options and environmentally friendly packaging. Some respondents may also express enthusiasm for mobile ordering and personalized product recommendations, while showing less interest in complex technologies such as augmented reality.

Based on this feedback, the project focus can be refined by prioritizing health-focused products, sustainable practices, and convenient digital services. This will ensure that FutureBake addresses genuine customer needs while maintaining its innovative vision and commercial viability.

Types of Quantitative and Qualitative Analysis:

Quantitative analysis focuses on numerical data and statistical techniques. Common types include descriptive analysis (summarizing data using averages, percentages, and charts), correlation analysis

(examining relationships between variables), and regression analysis (predicting outcomes based on data patterns). These methods help identify trends and measure customer preferences.

Qualitative analysis focuses on non-numerical data such as opinions and experiences. Common types include thematic analysis (identifying recurring themes and patterns), content analysis (examining text, interviews, or documents), and narrative analysis (studying individual stories and experiences). These approaches provide deeper insights into customer attitudes, motivations, and perceptions.

REFERENCES:

[11] P. et al Ranganathan, "Designing and validating a questionnaire Part 2," 2024.

[12] A. et al Bujang Mohamad, "Sample size determination for conducting a pilot study to assess reliability of a questionnaire," 2024.

[13] L. Plonsky, "Sampling and Generalizability in Lx Research: A Second-Order synthesis," 2023.

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[15] A. Ghanad, "An overview of Quantitative research methods," 2023.

Conclusion

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CONCLUSION:

FutureBake represents the next generation of pastry businesses where food, technology, health, and sustainability work together to create meaningful global impact. By combining innovation with creativity, the business can redefine how people experience pastries and inspire a smarter future for the food industry.

,Appendices

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Reinventing Pastry For a Smarter,

FUTURE BAKES

Healthier & Sustainable World



IDEATION

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RESEARCH PHILOSOPHY

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MIND-MAP



1. Health focus Pastry innovation.
2. Sustainable Zero waste Bakery System.
3. 3D Printed Pastries.
4. Mood Based Dessert Creation.
5. AI Powered Personalized Pastries.

RESEARCH STRATEGIES, DATA COLLECTION METHODS & PILOT STUDY

To collect data for the FutureBake project, a mixed-methods research strategy will be used, combining both quantitative and qualitative approaches.

DATA COLLECTION



AIMS & OBJECTIVES

AIMS:
The aim of FutureBake is to transform the global pastry and baking industry.

OBJECTIVES:
To develop innovative pastry products that combine taste, nutrition, and modern food technology.



CONCLUSION

FutureBake represents the next generation of pastry businesses where food, technology, health, and sustainability work together to create meaningful global impact. By combining innovation with creativity, the business can redefine how people experience pastries and inspire a smarter future for the food industry.

