DX Lab
Kagawa University

Yusuke KOMETANI

- Professor, DX* Research Center, Integrated Center for Informatics
- (Concurrent) Professor, Faculty of Engineering and Design
- Assistant to the CIO (Chief Information Officer)
- Regional Collaboration Lead, Planning and Coordination Committee, Advanced IT Human Resource Development Project

 * "DX" is used in Japan to mean "digital transformation."

Fields of Expertise

Knowledge management systems and data integration platforms

Career History

- 2014: Completed Doctoral Program (Engineering) at Graduate School of Science and Technology, Tokyo University of Science: Ph.D. (Engineering)
- 2014: Research Assistant, Faculty of Human Sciences, Waseda University
- 2017: Assistant Professor, Information Center, University of Kitakyushu
- 2017: Assistant Professor, Information Center, Kagawa University
- 2018: Assistant Professor, Faculty of Creative Engineering, Kagawa University
- 2025: Professor, DX Research Center in the Integrated Center for Informatics, Kagawa University

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Current Roles and Activities

(1) UX research
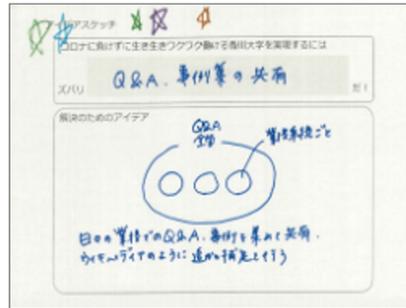Investigating user experience issues in university operations

- Design thinking
- Co-creation
- Business model innovation

"It's hard to leave when my boss or senior colleagues are still at work…"

(2) Ideathons
Generating ideas for operational improvements

- Design thinking
- Co-creation

"Siloed organization means that operational knowledge is dispersed."

(3) In-house development
Leading in-house development of operational systems
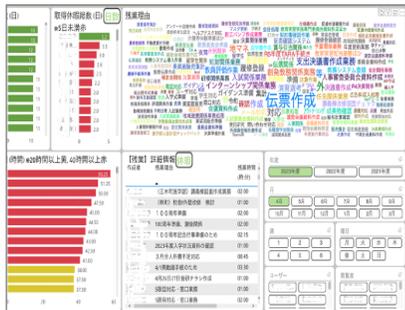
- Design thinking
- Co-creation
- Data-driven management

"We can develop the systems we genuinely need!"

(4) Business data analysis
Analyzing data obtained from operational systems

- Data-driven management
- Business model innovation

"University management can be data-driven."

(5) Hands-on workshops
For system development and data analysis

- Design thinking
- Co-creation
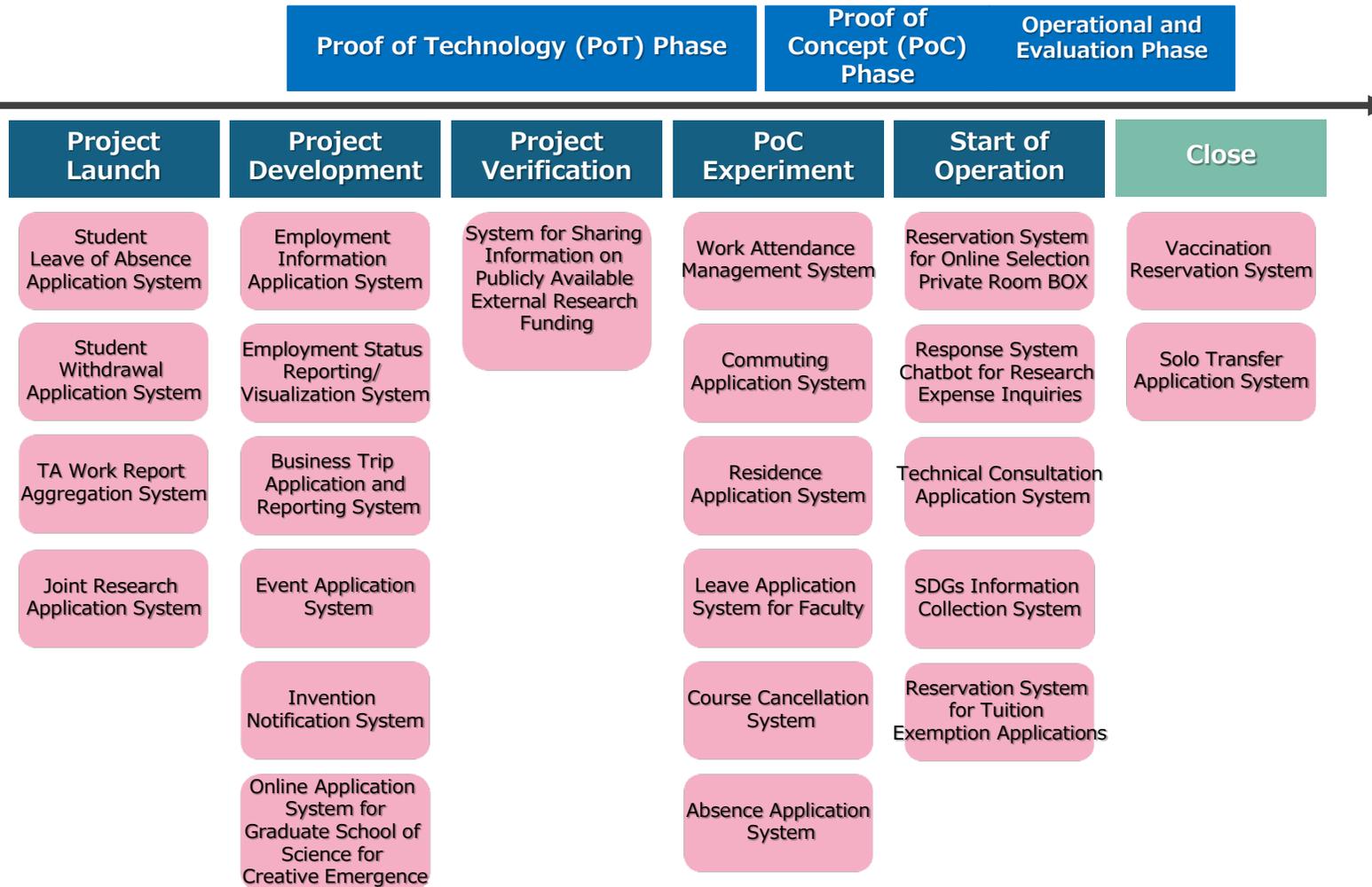- Data-driven management
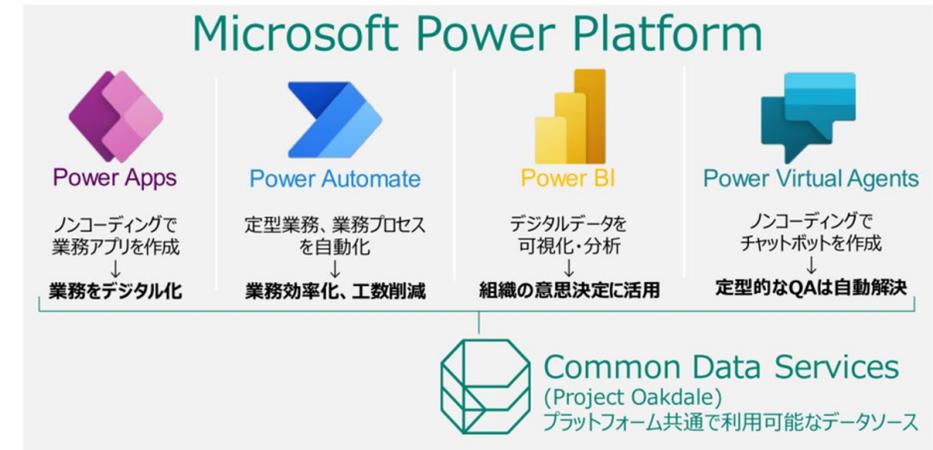- Business model innovation

"It looks like we can develop it ourselves!"

Student Development Team

At Kagawa University, I am involved in various DX initiatives, most of which are led by students

In-house Systems Development

Proof of Technology (PoT) Phase			Proof of Concept (PoC) Phase	Operational and Evaluation Phase	
Project Launch	**Project Development**	**Project Verification**	**PoC Experiment**	**Start of Operation**	**Close**
Student Leave of Absence Application System	Employment Information Application System	System for Sharing Information on Publicly Available External Research Funding	Work Attendance Management System	Reservation System for Online Selection Private Room BOX	Vaccination Reservation System
Student Withdrawal Application System	Employment Status Reporting/ Visualization System		Commuting Application System	Response System Chatbot for Research Expense Inquiries	Solo Transfer Application System
TA Work Report Aggregation System	Business Trip Application and Reporting System		Residence Application System	Technical Consultation Application System	
Joint Research Application System	Event Application System		Leave Application System for Faculty	SDGs Information Collection System	
	Invention Notification System		Course Cancellation System	Reservation System for Tuition Exemption Applications	
	Online Application System for Graduate School of Science for Creative Emergence		Absence Application System		

Microsoft Power Platform
Low-code/No-code Platform
Enabling the development of various applications

Microsoft Power Platform

Power Apps
ノンコーディングで業務アプリを作成
↓
業務をデジタル化

Power Automate
定型業務、業務プロセスを自動化
↓
業務効率化、工数削減

Power BI
デジタルデータを可視化・分析
↓
組織の意思決定に活用

Power Virtual Agents
ノンコーディングでチャットボットを作成
↓
定型的なQAは自動解決

Common Data Services
(Project Oakdale)
プラットフォーム共通で利用可能なデータソース

Developed over 100 operational systems in-house

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Research Focus

Kometani Laboratory, Course in Informatics,
Department of Engineering and Design, Kagawa University

> Conducting research on knowledge management systems

Acquiring basic knowledge about knowledge management systems development

Participatory sensing	Knowledge management systems development	HITL simulations
- Mobile sensing - Mobile object sensing - Environmental sensing	- Business requirement extraction - Data modeling and design - Data integration and interoperability - Business intelligence	- MICE operational simulation - Shelter operational simulation - Community event operational simulation

Solving various problems facing society using knowledge management systems

The lab engages in research on the data utilization life cycle

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Smart City Initiatives

City Data Lab

- A program for developing systems that solve local issues using city data
- Acquire system development and data analysis skills using low-code and no-code tools
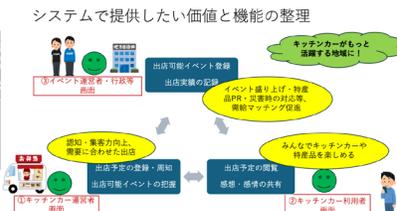- Practice design thinking and develop prototypes through teamwork

Achievements in 2024

Participants included 11 working adults and 18 high school students

System Prototypes

Food truck information sharing system

Wildlife hazards management system

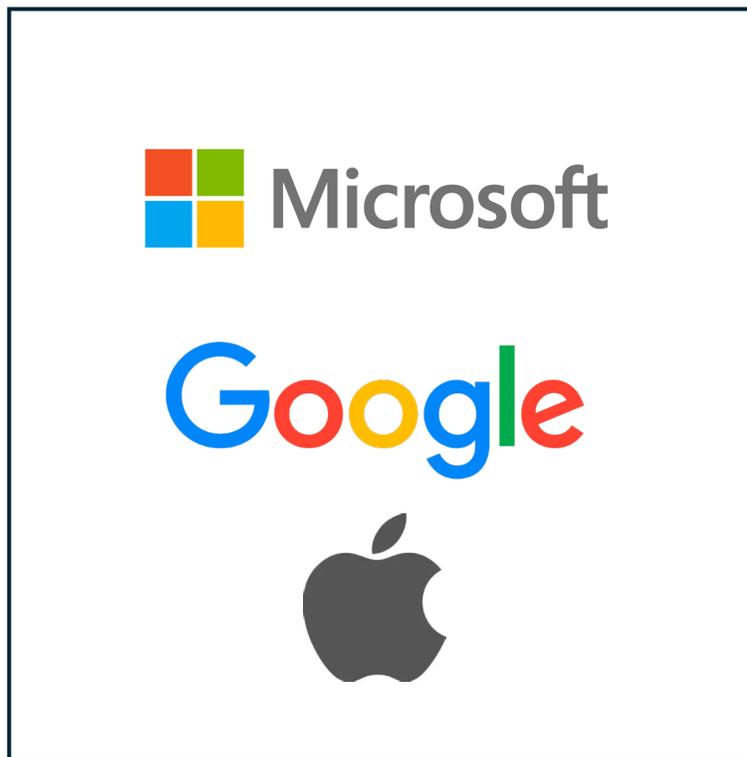School accident reporting system

City Data Lab 2024

A diverse group of participants—including companies, local governments, and high school students—develop systems that use city data to solve local issues.

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Inclusivity in System Development

Vendors develop and provide only products that sell well.
This is called the Long Tail Principle.

The best-selling 20% of products account for 80% of total sales!

Essentially, this part is not catered for

Sales

20% 80%

Best-selling products   **Other products**

Number of products

Vendors

Source (The Pareto Principle and Long-Tail Theory, in Japanese): https://www.onemarketing.jp/contents/pareto-principle_re/

To improve the inclusivity of services and systems, it is necessary to have a highly inclusive development process.

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