

16.09.2024

SERVICE DESIGN

Digitalisation of Services and Servitization of Software

Joanna Saad-Sulonen, associate professor

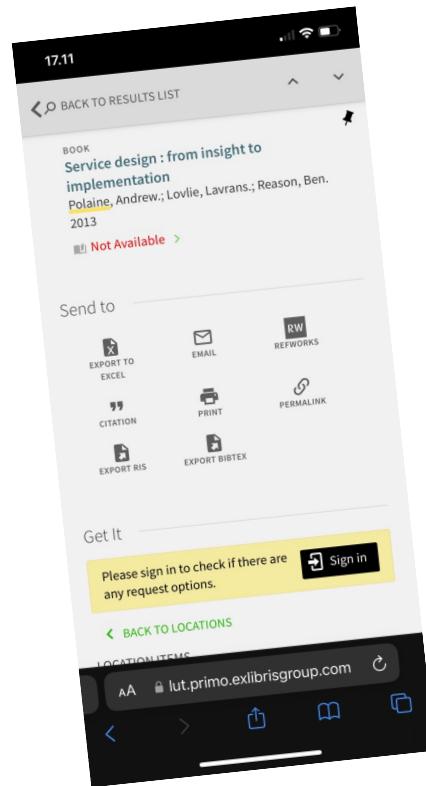
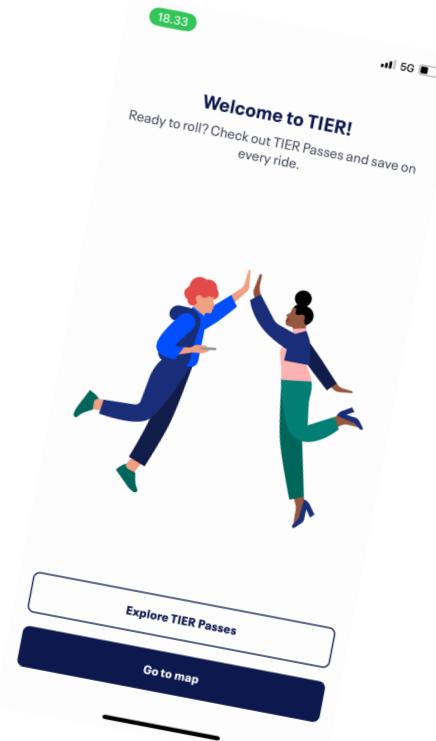
Joanna.Saad-Sulonen@lut.fi

RECAP

- » Servitization
- » Goods-Dominant logic
- » Service-Dominant logic
- » Foundational principles and Axioms of S-D logic
- » Value proposition
- » Co-creation of value
- » Application of S-D logic to Information Systems: example of Value Interaction Model.
Interaction space; Relationship, Matching, and Service layers → Relationship, Matching,
and Service value



SERVICE SAFARI EXPERIENCE!



WE WILL COVER 2 DIFFERENT THINGS TODAY

- » Digitalisation of Services
- » Servitization of Software

Services have always existed but the channels used to provide them change over time!

DIGITALISATION OF SERVICES



HOUSE FORMERLY A PILGRIMS' HOSTEL, COMPTON.



1954
Howard Johnson becomes the first hotel to franchise



1957
Marriott launches its first hotel in Arlington, VA



1969
Westin is the first chain to offer 24-hour room service



1958
Sheraton introduces the first hotel automated electronic reservation system and first toll-free reservation phone number



1976

Sørnes introduces VingCard,

Discover Trips Community More

Cart Sign in

Where to?

Search All Hotels Things to Do Restaurants Vacation Rentals

Places to go, things to do, hotels... Search

Powered by AI BETA

Build a trip in minutes

Get a personalized itinerary just for you, guided by traveler tips and reviews.

Start a trip with AI

Check out your trip to Chicago



Lodging services through time

DIGITALISATION OF SERVICES



Jay Pritzker buys Hyatt House, a small motor lodge near LAX.



Always on the cutting edge of customer service, Hyatt opens a central reservations office in Omaha, Nebraska—with a dedicated toll-free 800 number.



2019

Hyatt announces two new hotel brands, Caption by Hyatt, a lifestyle brand designed to inspire personal connections, and UrCove, a brand developed in a joint venture with BTG Homeinns Hotels Group to cater to China's growing upper-midscale market of frequent business travelers.

World of Hyatt continues to advance, connect and add to the program with a newly designed mobile app, expansion of Small Luxury Hotels of the World destinations, and new alliances with American Airlines and Lindblad Expeditions.

Images: <https://about.hyatt.com/en/hyathistory.html> & <https://www.youtube.com/watch?v=yyR15OLPnI0>

2022



iPhone Hotel Room Key

DIGITALISATION OF SERVICES



Image: OP <https://historia.op.fi/>



[Open account](#)

Current account

Bank account for daily use

- Pay your bills, purchases and loan repayments easily from your account
- Track all account transactions conveniently in OP's channels
- From 1 November 2023, the account interest rate for owner-customers is 0.25% in the bank where the owner-customer membership of all account holders is. Otherwise, the interest rate is 0.00%.

[Open current account](#)



For more accounts, go to op.fi.

CLARIFICATION OF TERMS

“s”: British English
“z”: US English

Digitisation

Digitalisation

Digital
transformation

DIGITISATION

It is the process of changing from analogue to digital form

≡ europeana

HOME COLLECTIONS STORIES SHARE YOUR COLLECTIONS LOG IN / JOIN 🔎

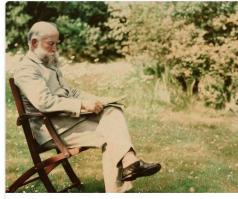
SHARE

Themes



Newspapers

Explore printed publications from 1618 to the 1980s. Discover headlines, full-text articles, advertisements, and the writers...



Photography

Explore the history of photography, discover incredible images and find out about the photographers behind them.

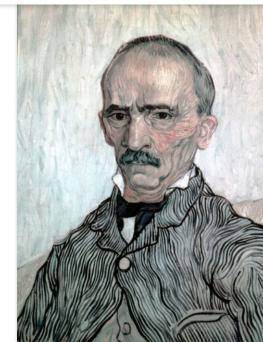
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≡ europeana

HOME COLLECTIONS STORIES SHARE YOUR COLLECTIONS LOG IN / JOIN 🔎

X CLEAR

^ "Vincent van Gogh"



Sport

Explore the history of sports pec films, sour document



DIGITALISATION

It is the use of digital technologies to change a business model and provide new revenue and value producing opportunities (in private sector) or to make service delivery more efficient and accessible to citizens (in private and public sector)



FROM SERVITIZATION TO DIGITALIZATION OF SERVICES

Product

+

service

+

e-service

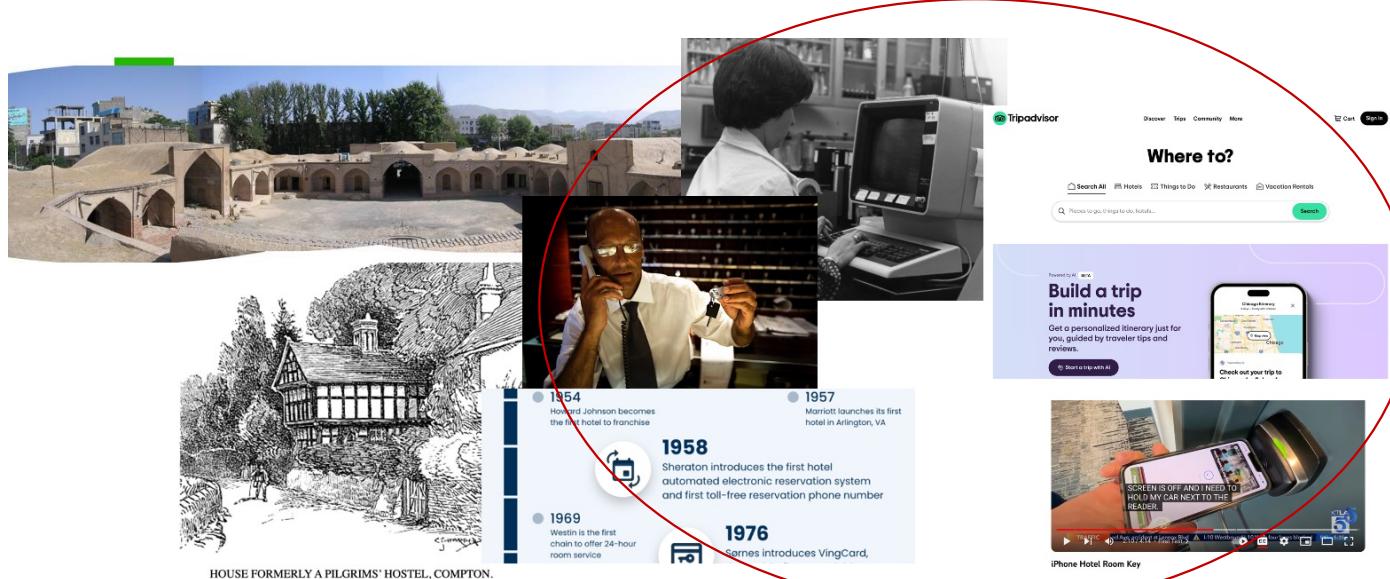
-> value!



Centre image: meanwell-packaging.co.uk/

DIGITAL TRANSFORMATION

It is about changing the competencies of the organisation to support continuous digitalisation



SUMMARY

“s”: British English
“z”: US English

- » **Digitisation:** the process of changing from analogue to digital form
 - » **Digitalisation:** the use of digital technologies to change a business model and provide new revenue and value producing opportunities (in private sector) or to make service delivery more efficient and accessible to citizens (in private and public sector)
 - » **Digital transformation:** changing the competencies of the organisation to support continuous digitalisation
-
- » *“we digitize information, we digitalize processes and roles that make up the operations of a business” [or a public service provider], “and we digitally transform the business and its strategy.”*

Blomberg, 2018: https://moniquebabin.com/wp-content/uploads/articulate_uploads/Going-Digital4/story_content/external_files/Digitization%20Digitalization%20and%20Digital%20Transformation%20Confusion.pdf

WITH SERVICES...

- » ... we talk about the **digitalisation of services** and the **digital transformation of the organisations** providing these services

University of
Zurich UZHMEDIA **CHANGE**
and innovation a division of ikmz

DIGITALIZATION PUSH DUE TO COVID-19: SHORT-TERM FORCED VS. LONG-TERM DESIRED



increase in percentage points; respondents were asked about the digital share of activities before, during, and after the covid-19-pandemic, accordingly, the short-term forced (during vs. before) and long-term desired (during vs. after) digitalization push was calculated

Data basis: (employed) Swiss
internet users 14+, WIP-CH

Latzer, M., Büchi, M., Kappeler, K., Festic, N. (2021). Research Reports from the World Internet Project – Switzerland 2021.
Zurich: University of Zurich. <http://mediachange.ch/research/wip-ch-2021>



https://mediachange.ch/media//medialibrary/2021/11/InfoGrafik_digitalization_push.png



Danish National Strategy for Digitalisation 2022

- Denmark has one of the world's best digital public sector
- 2nd place after Finland in the European Commission's annual Digital Economy and Society Index of 2022

Public service: a service rendered in the public interest, provided by public authorities (government, municipalities...) e.g. health care, transport, the removal of waste...

Key steps in the digital development

2021	Corona Passport app is launched
2021	Health insurance card app is launched
2020	Driving licence app is launched
2015	The first Apple Watch is available in stores
2014	Digital post is made mandatory for people in Denmark
2013	MobilePay is introduced
2013	Digital post is made mandatory for businesses in Denmark
2011	4G network is rolled out in Denmark
2010	NemID and mobile banking app are launched
2009	Digital land registration is introduced
2007	Borger.dk is launched
2007	The first iPhone is launched
2006	Spotify is founded
2006	The first Danish Facebook profiles are created
2005	Google Maps is introduced
2005	The first video is uploaded to YouTube
2005	E-invoice is introduced in Denmark, making electronic invoicing standard for B2G (business to government)
2003	NemKonto is introduced in Denmark
2003	Sundhed.dk and Virk.dk are launched
2001	The first article on Wikipedia is created
2001	The first joint public sector digitalisation strategy is presented – people can now send e-mails to public authorities
1999	Nokia 3210 is introduced to the market
1989	World Wide Web is introduced and it becomes possible to access websites from all over the world
1982	1G network is launched
1982	Commodore 64 is launched
1968	The CPR register (the civil registration system) is introduced
1959	Datacentralen is established by the central government, counties and municipalities

Suomi.fi

Search in Suomi.fi

In English (EN) ▾

Identification

Menu

Home Information and services ▾ Messages e-Authorizations Registers Instructions and support

Suomi.fi – information and services for your life events

Are you wondering how you and your family will settle in Finland? > The Work in Finland guide has this topic covered

Future parent – remember at least these > Pregnancy checklist

Are you planning to set up a company? > Take advantage of the business start-up wizard

Remember these if your personal data ends up in the wrong hands > Instructions for data leak situations

Show less ▾

Suomi.fi services

Messages > Go to the messages

e-Authorizations > Go to the e-Authorizations

Registers > Go to the registers

Shortcuts

For citizens > See the information and services for your life events

For companies and organisations > See the information and services for different needs in a company

Service locations on map > See where you can use the services in person

Suomi.fi in Finnish Sign Language > Go to contents in sign language

My goal after leaving Denmark: get registered in Finland

My situation: I have the Finnish nationality

Service provided by the Finnish authorities to allow Finnish nationals to register to Finland is part of suomi.fi services

You are identifying yourself to the service SUOMI.FI

Select identification method

Pre-arrival Support Services

Are you considering moving to the Helsinki capital region? International House Helsinki provides guidance and support to help you prepare for your move and start your life in the Helsinki capital region.

Authority Services

With the help of International House Helsinki's authority services, you can take care of necessary authority steps such as registering your EU citizen's right of residence, applying for your Finnish personal identity code, applying for your tax card, and more.

→ Learn more

Authenticate with F-Password

Enter your user identifier and password

UID or email address
Password
LOG IN
Click here to register

Guidance and Support Services

For general advice about life in the Helsinki capital region, International House Helsinki provides guidance and support services such as finding employment, employee rights, support for spouses, and more.

→ Learn more

International House Helsinki

suomi.fi

Do you need help using Suomi.fi?

Customer service for citizens

Helps citizens use the Suomi.fi services
Call: +358 295 000
[Additional information on Public Service Info](#)

Customer service for organisations

Helps companies and organisations use the Suomi.fi services
Call: +358 295 535 115
[Additional information on customer service for organisations](#)

Enterprise Finland Telephone Service

Provides advice on establishing an enterprise, public business services and helps companies use the Suomi.fi services
Call: +358 295 020 502
[Additional information on the Enterprise Finland Telephone Service](#)
Contact business advice ▾

Suomi.fi – information and services for your life events

dvv.fi posti.fi

International House Helsinki

Enterprise Finland Telephone Service

Customer service for citizens

Customer service for organisations

Shortcuts

- For citizens: See the information and services for your life events
- For companies and organisations: See the information and services for different needs in a company
- Service locations on map: See where you can use the services in person
- Suomi.fi in Finnish Sign Language: Go to contents in sign language

Identification methods

- Certificate card
- Mobile certificate
- Nordea
- Danske Bank
- Handelsbanken
- PANKE
- S-pankki
- Aktia
- POP Pankki
- Säästöpankki
- omadP
- Identification methods for foreigners

Information and services

- Messages
- e-Authorizations
- Registers

Shortcuts

- For citizens: See the information and services for your life events
- For companies and organisations: See the information and services for different needs in a company
- Service locations on map: See where you can use the services in person
- Suomi.fi in Finnish Sign Language: Go to contents in sign language

Pre-arrival Support Services

Authority Services

Guidance and Support Services

Are you moving?

Do you need help using Suomi.fi?

Customer service for citizens

Customer service for organisations

Enterprise Finland Telephone Service

SHARE AND DISCUSS

- » Work in your group or with another fellow student and share together:
- » One example of a need you had lately to interact with public services (e.g. state, municipality, public healthcare... in Finland or in another country)
- » Did your journey include many steps? What were they? Which interactions were digital?
- » What did you need to have in order to be able use the digital public service?
- » What skills did you need to possess to be able use the digital public service?
- » How was the experience for you?
- » Did you need help? Who/what provided it?

“WE’RE DIGITAL BY DEFAULT.
WELL I’M PENCIL BY DEFAULT.”





BREAK

10 mins

SERVITIZATION OF SOFTWARE

SERVITIZATION

1. We sell
bulbs

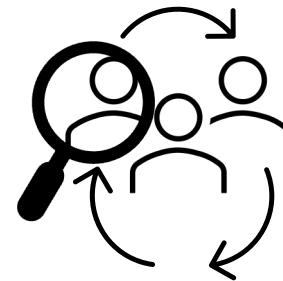
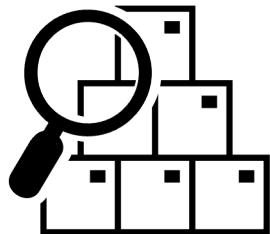
2. We change
bulbs in your
company

3. We offer
leasing
options for
your
company

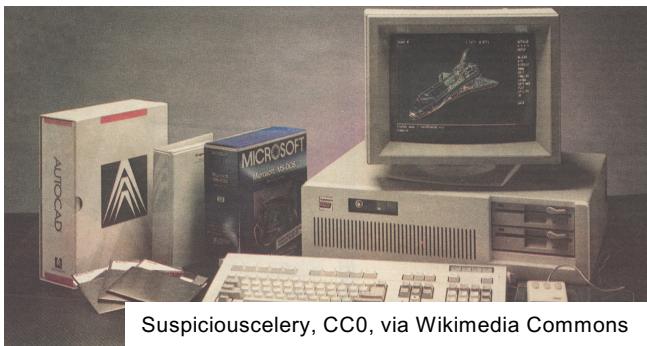
4. We offer
an energy
certification
and training
for your
staff to save
energy and
reduce total
energy costs

5. We offer a
complete service of
energy management,
including lighting
installation, change
maintenance and
management. An
app help your team
to monitor and
manage lighting
across your company
to save costs and
be environmentally
friendly

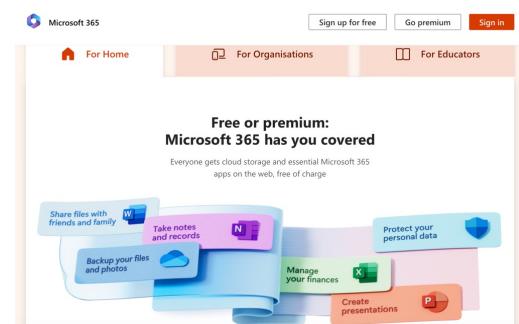
SERVITIZATION OF SOFTWARE



Software as a product



Software as a Service (SaaS)



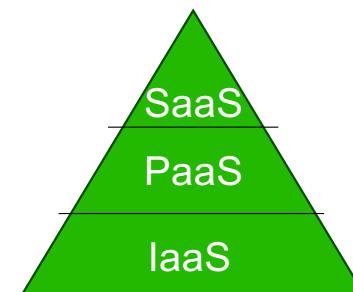
SERVITIZATION OF SOFTWARE IS POSSIBLE BECAUSE:

- » **Cloud computing:** Cloud computing enables the scalability of software at low cost, making it feasible to provide software services to a large user base at low costs.
- » **Bandwidth:** Availability of bandwidth enabling connecting almost anywhere at any time.
- » **Modular software:** Modular design of service enabling the decoupling of functionality and configuration and composition of services as preferred by users.

(Janssen & Joha, 2011)

3 CLOUD SERVICE MODELS

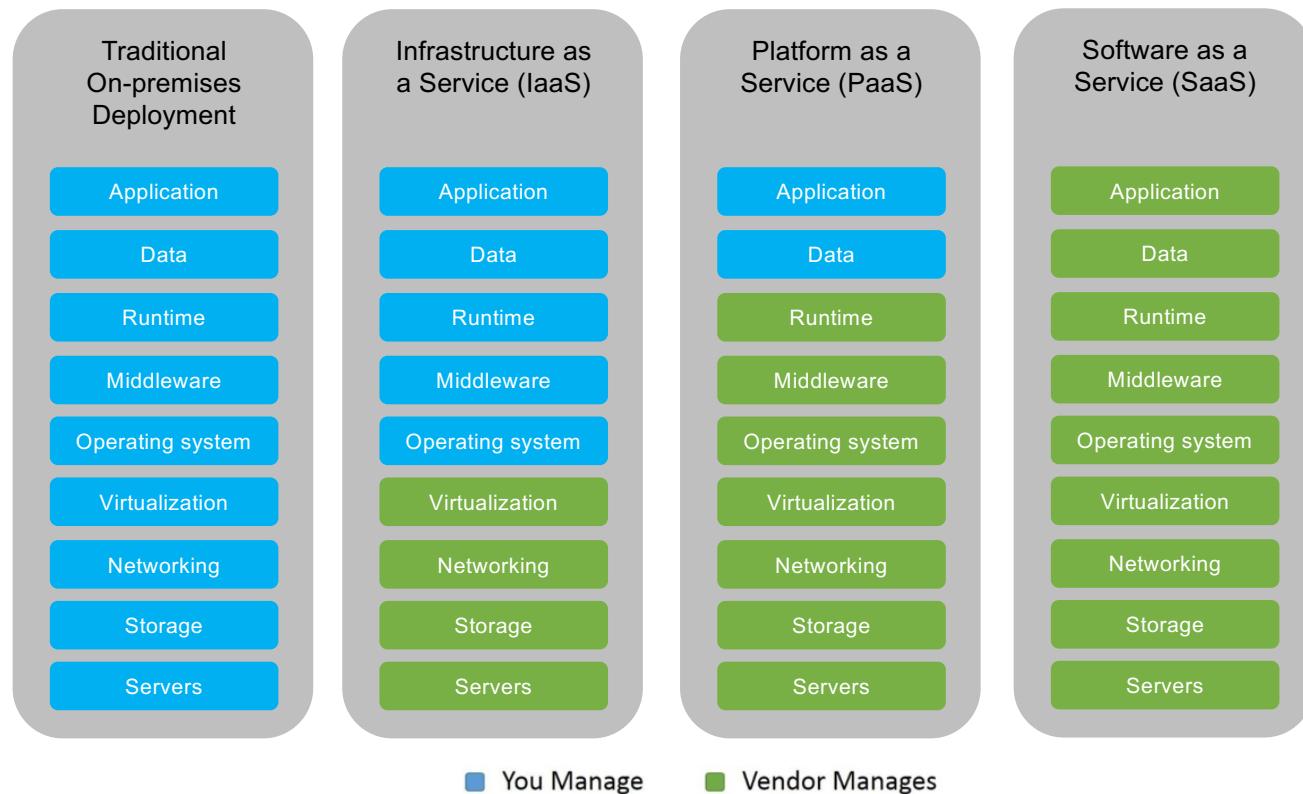
- » **IaaS:** Infrastructure as a Service: delivers infrastructure such as servers and data storage via the cloud
 - » **PaaS:** Platform as a Service: provides the hardware and software needed to develop and run custom applications
 - » **SaaS:** Software as a Service: third-party software hosted in the cloud and accessed via the internet
-
- » SaaS runs on top of PaaS that in turn runs on top of IaaS
 - » PaaS and IaaS marketed mostly as B2B
 - » SaaS can be B2B or B2C



<https://www.thinklogic.com/post/saas-vs-paas-vs-iaas-whats-the-difference-how-to-choose>

— DIFFERENCES: ON-PREMISE, IAAS, PAAS, SAAS

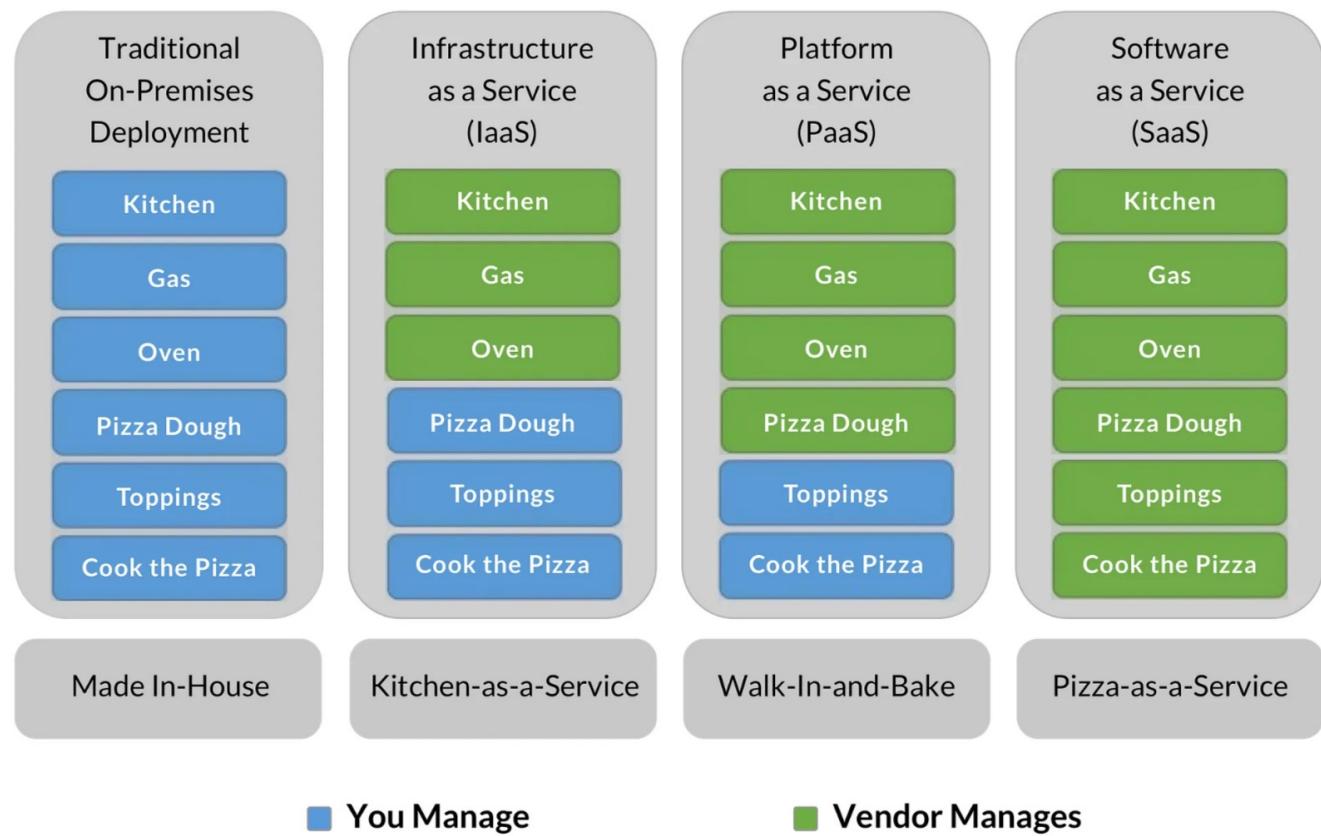
← Software as a product → . <----- Servitization of software -----→



EXAMPLES

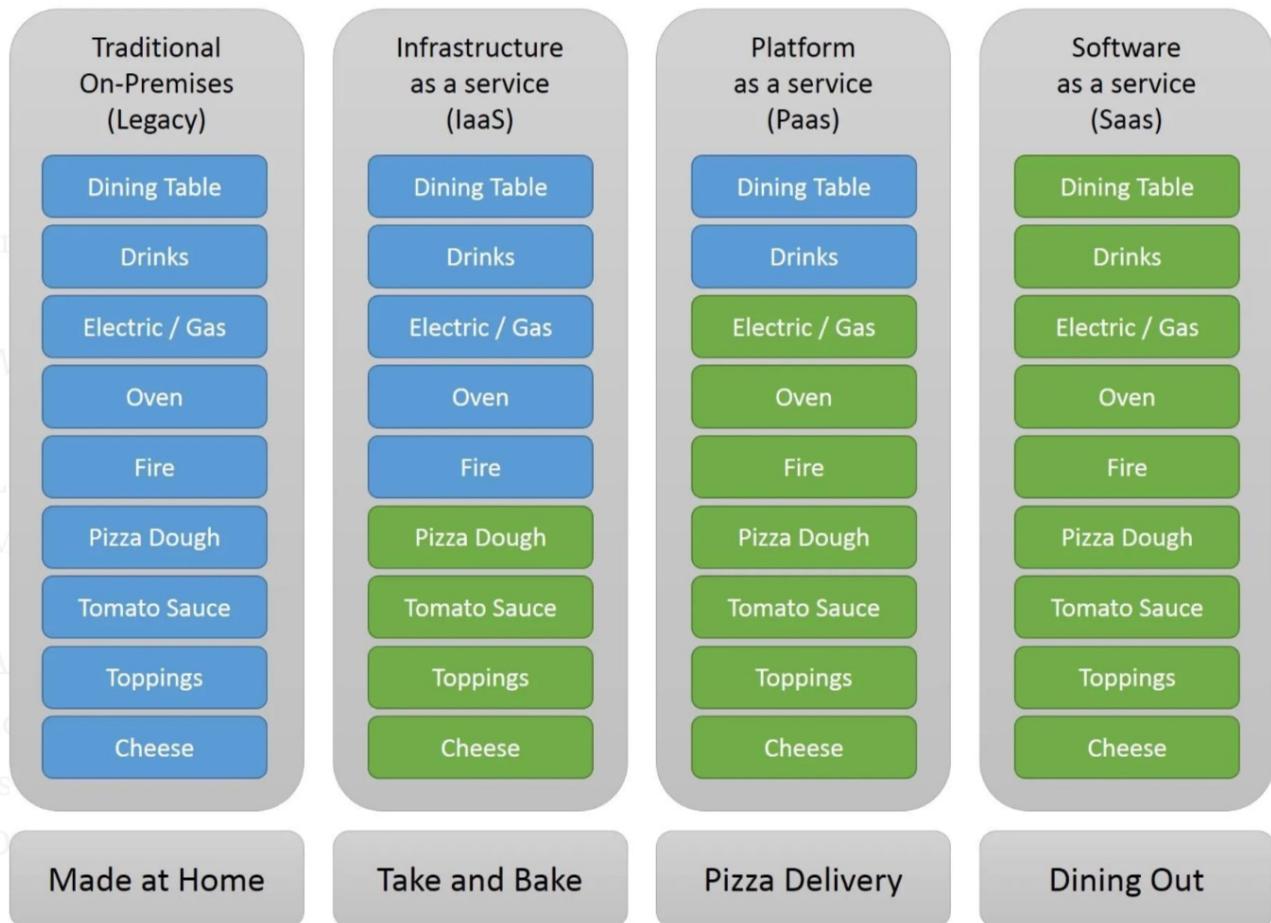
- » **IaaS:** Amazon Web Services Elastic Cloud (AWS EC2), Digital Ocean, Google Compute Engine...
- » **PaaS:** Google App engine, Heroku, Windows Azure, AWS Elastic Beanstalk, Salesforce Platform...
- » **SaaS:** Netflix, Zoom, Trello, Slack, Microsoft o365, Salesforce, DocuSign, Slack, MailChimp, Dropbox...

“PIZZA AS A SERVICE” V.1



<https://m.oursky.com/saas-paas-and-iaas-explained-in-one-graphic-d56c3e6f4606>

“PIZZA AS A SERVICE” V.2



<https://m.oursky.com/saas-paas-and-iaas-explained-in-one-graphic-d56c3e6f4606>

TRADITIONAL SOFTWARE VS. SAAS

Characteristics	Traditional software	SaaS
Ownership	Buying of software	Renting of software without taking ownership
Pricing model	Upfront investments and costs for local installation/maintenance incl. licenses	Pay-per-use or pay-per-period
IT function	Buys, installs, develops, implements and maintains their own software	Subscribe, plug in and use: no need for an IT function and no concern of updates
Expertise needed	In-house software expertise needed for control and maintenance	Usage expertise required

(Janssen & Joha, 2011)

 20 mins

SHARE AN EXAMPLE OF IAAS, PAAS OR SAAS

- » Step 1: Share in your group examples of cloud-based service models that you have used:
Do you use them as an end-user (e.g. as an employee in an organisation that bought access to them) and for what purposes? Do you use them as a software developer or IT specialist and for what purposes? Are they IaaS, PaaS, or SaaS? Use the Pizza as a service model to help you*?
- » Step 2: Share the outcomes of your discussion with another group

- You can visit: <https://www.nigelfrank.com/insights/iaas-vs-saas-vs-paas-a-guide-to-azure-cloud-service-types>
<https://www.thinklogic.com/post/saas-vs-paas-vs-iaas-whats-the-difference-how-to-choose>

FOR WEDNESDAY

- » You will work on the same service you have explored in the service safari, and continue to analyse it
- » This Wednesday I might exceptionally be a little bit late, so let us start at 14:15! My colleague Eerika will be in class until I arrive 😊
- » If you want to vote for how we continue during the rest of the semester (starting classes and tutorials on the hour sharp, at past 10 minutes, or past 15 mins), please use this link or QR code and we will decide next Monday based on the results

<https://www.menti.com/alsfqvojhi3>



GR1 AND GP1 NOW ON MOODLE

- » Have a look!
- » You need to scroll down past W43, to: Deadline 30.10: Group Report 1, Group Presentation 1, Individual Report 1
- » Bring your questions about GR1 and GP1 to class on Wednesday or next week!

REFERENCES

- » MA, Dan. (2007). The business model of "Software-as-a-Service". IEEE International Conference on Services Computing SCC 2007: Proceedings: Salt Lake City, UT, 9-13 July 2007. 701-702. Research Collection School Of Information Systems. Available at: https://ink.library.smu.edu.sg/sis_research/572
- » Janssen, Marijn and Joha, Anton, "CHALLENGES FOR ADOPTING CLOUD-BASED SOFTWARE AS A SERVICE (SAAS) IN THE PUBLIC SECTOR" (2011). ECIS 2011 Proceedings. 80. <http://aisel.aisnet.org/ecis2011/80>

