



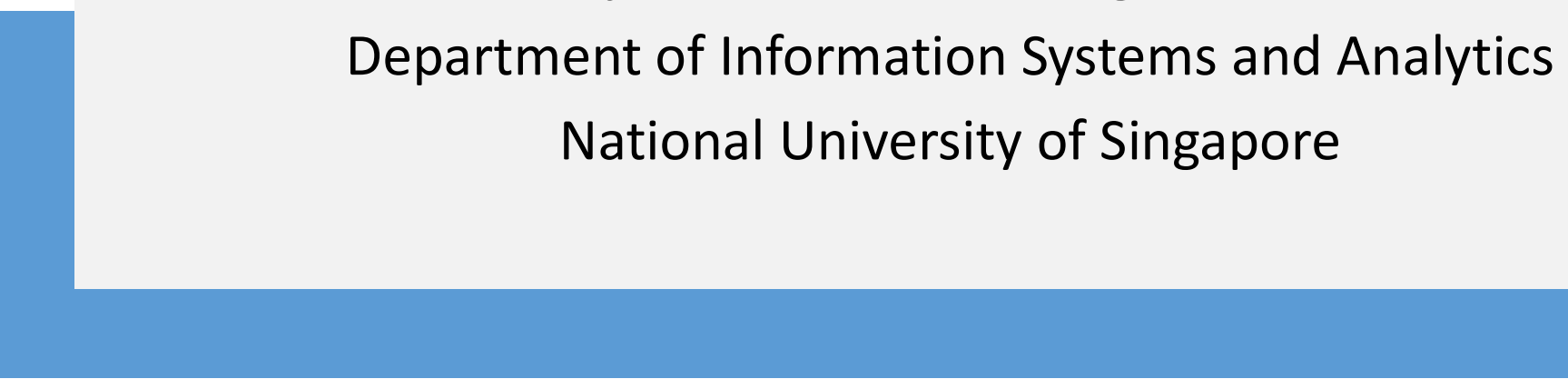
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IS4301 Agile IT with DevOps – Lecture 1

Adjunct Professor Foong Sew Bun
Department of Information Systems and Analytics
National University of Singapore



Learning Objectives

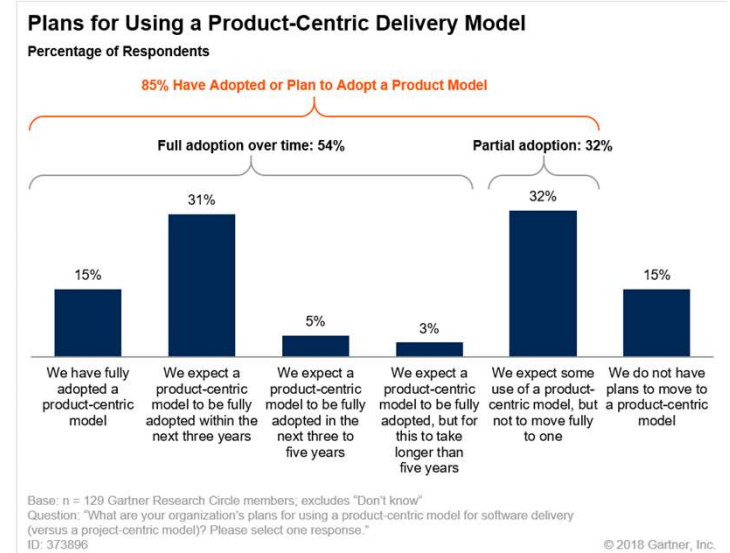
At the end of this lecture, you will understand:

- Introduction to course syllabus.
- Digital transformation and Agile.



Gartner Survey Finds 85 Percent of Organizations Favor a Product-Centric Application Delivery Model, 2019.

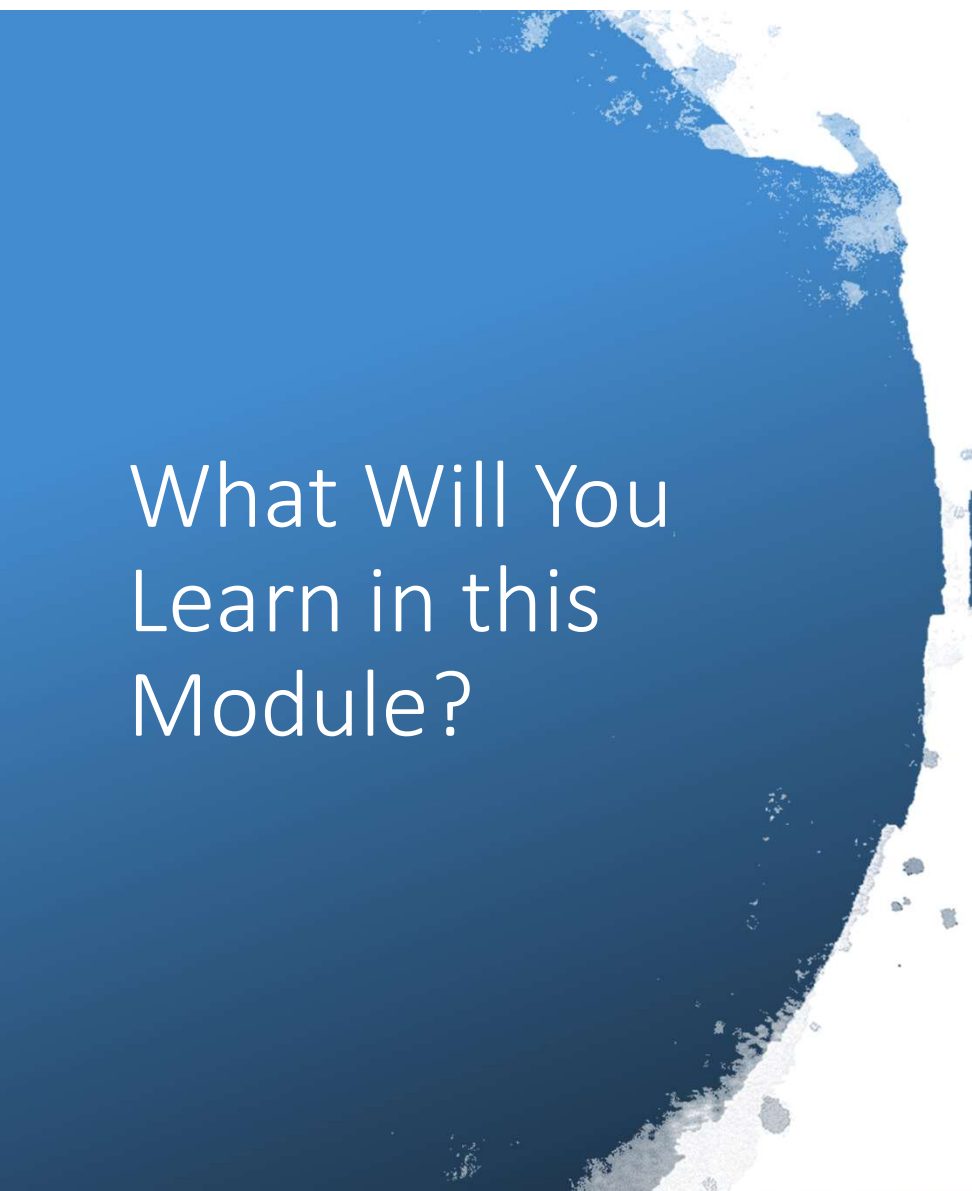
- Eighty-five percent of organizations have adopted, or plan to adopt, a [product-centric application delivery model](#), according to a survey* by Gartner, Inc. Although full adoption is rare, overall, survey respondents use the product-centric model for 40 percent of their work in 2018. Gartner predicts that this figure will reach 80 percent by 2022.
- “The increase in how quickly and broadly organizations are adopting the product-centric application model doesn’t arise randomly. It goes hand-in-hand with the adoption of [agile](#) development methodologies and [DevOps](#),” said [Bill Swanton](#), distinguished research vice president at Gartner. “In addition, an increasing number of applications that IT teams develop are used by external parties, such as clients or partners, and require the increased customer focus that characterizes the product-centric model.”



Course Timings and Location

- Course location: Fri 0800-1000
- Tutorial location :
 - Tutorial Group 1: Fri 1000-1100, online
 - Tutorial Group 2: Fri 1100-1200, online
 - Tutorial Group 3: Fri 1600-1700, online
 - Tutorial Group 4: Fri 1700-1800, online

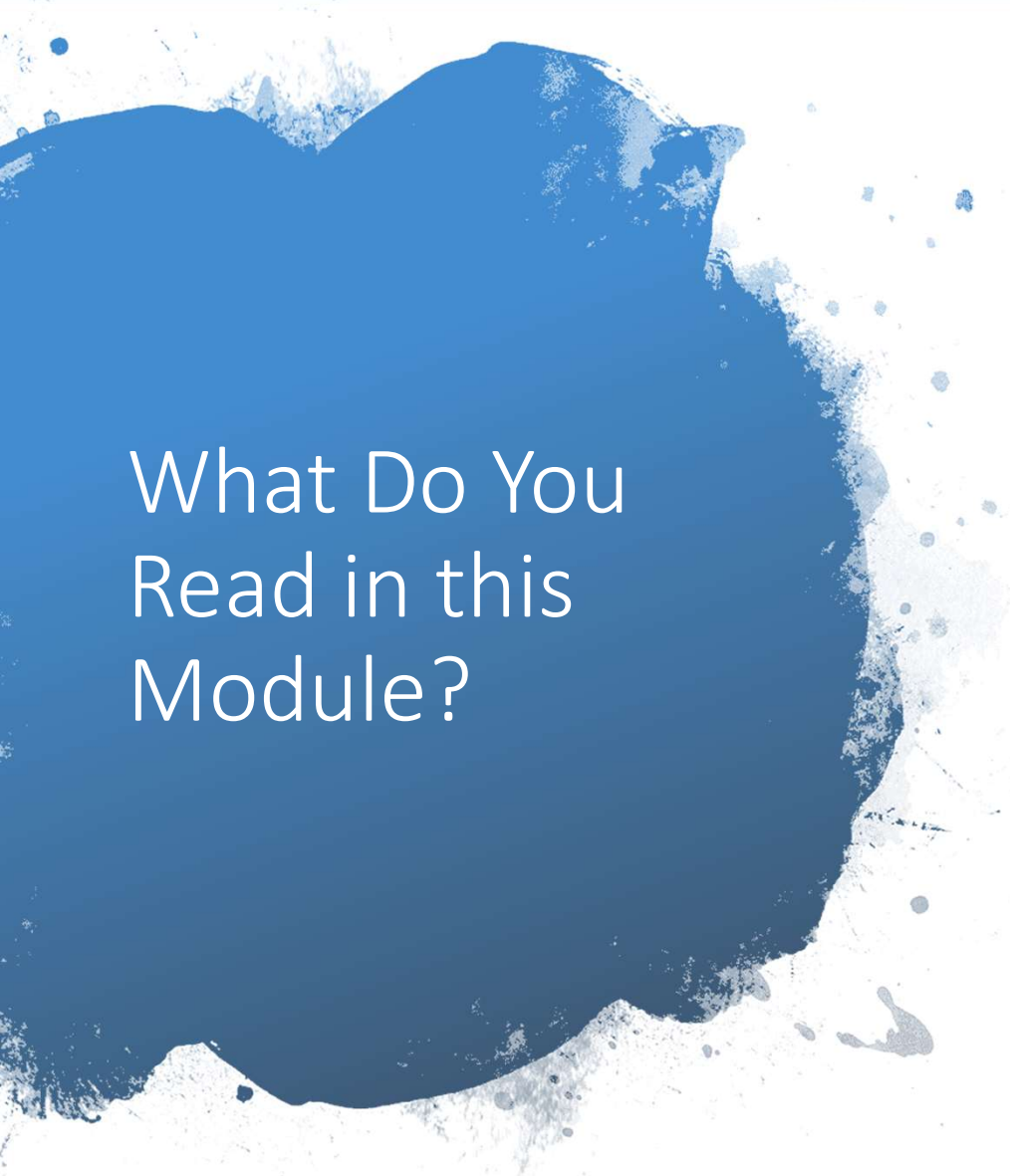




What Will You Learn in this Module?

Topics:

- Traditional SDLC software development and operations vs. Agile
- Overview of Agile Methods, team structure, lifecycle, technical practices, user stories, agile estimation
- Case studies in banking and other industries
- Overview of DevOps, Continuous Integration Continuous Deployment (CI/CD)
- Overview of foundational technologies, platform and open toolchains
- Developing simple microservices with Gitflow



What Do You Read in this Module?

- Textbook for this module:
 - No textbook
 - World is your book
- Real World Case Studies especially banking industry
- Fintech Challenges
- Instructor-led, e-Learning and peer learning
- Learn and practice approach
- Wikis, githubs, ...

Syllabus

Lecture 1: Course Introduction to Agile IT with DevOps

Intro to course syllabus. Digital transformation and Agile.

Lecture 2: Overview of Agile Methods and DevOps

Traditional SDLC software development and operations vs. Agile Methods, impact to business and IT agility, Agile Manifesto, Agile Development Introduction, Agile Workspace, Case Studies including Banking.

Lecture 3: Understand essential concepts of different Agile Methods and Roles in Agile Team Structure.

Tutorial 1: Formation of tutorial teams & selection of Fintech Challenge Statement

Lecture 4: Understand Agile lifecycle, ceremonies and technical practices.

Tutorial 2: Understand roles in sprint teams, formation of sprint team roles, conduct stand-up and sprint ceremonies

Syllabus

Lecture 5: Understand User stories, agile estimation.

Tutorial 3: Estimation and develop user stories

Lecture 6: Understand user story acceptance criteria and testing, backlog grooming

Tutorial 4: Conduct retrospective, develop more user stories and estimation

Recess and Exam Week – No lecture

Lecture 7: Understand Burn-up charts, Agile tools, Agile Tools Case Study, high level concepts of microservices in agile development, introduction to lab exercises.

Tutorial 5: Lab exercise: getting started with microservices for server-side implementation using Spring Boot

Lecture 8: Understand differences of SOA vs microservices, microservices case studies, Platform as a service for microservices, containerization and platform.

Tutorial 6: Lab exercise: getting started with microservices with client-side implementation using Ember js

Syllabus

Lecture 9: Introduction to DevOps, Overview of CI/CD, Value of continuous delivery, case studies

Tutorial 7: Lab exercise: reuse and integrate simple applications with Spring Boot and Ember from Github, learn simple branching using gitflow from simple DevOps toolchains.

Lecture 10: Concepts of Continuous Integration, Feature and Integration Branching, Deployment pipeline and automation, CI/CD toolchains, examples of combination of toolchains and usage in enterprises.

Tutorial 8: User Stories, Prepare for Fintech pitch and demos

Lecture 11: Project Presentations Week during lecture and tutorial sessions

Submission of Individual Written Assignment.

Lecture 12: Guest Lecture

How Will You be Tested?

- Grading Scheme:
 - Evaluation of individual presentation in tutorials, participation, final project (20%)
 - Individual written assignment (40%)
 - Final Project Team Proposal Presentation (40%)
 - Evaluation of contributions by peers in same team using TeamMates (0 %)
- Tutorial Sessions
 - Incremental project preparations of topic covered in weekly lessons
 - Research after each weekly lessons
- Final project presentations on Nov 4th during class and tutorial sessions
 - 15 mins for each project team
 - Need only to attend your team presentation slot
- Submission of individual written assignment on Nov 4th.



Grading of Project Presentation

Introduction – 5%

Challenge – 25%

Innovation – 30%

Conclusion – 20%

Special efforts – 10%

Organization – 10%

Grading Criteria – Individual Presentation

- Level of preparedness
- Organization - presentation communicates on the key merits of the challenge/solution clearly, effectively, informatively and in an attractive manner, good use of presentation time
- Talks to audience
- Teaming

A large, abstract blue watercolor splash graphic on the left side of the slide, with various shades of blue and white, creating a textured, painterly effect.

Common Questions

- Can I choose my project team members?
- What is the size of a project team?
- What are the benefits of project-based assessment in this course?
- What will make an A+ in this course?
- Does contents of presentation matter more than presentation skills?
- Can I choose topics for team project?
- How does peer evaluation work?
- Is it possible that team members will receive different grades within the same team?
- What are the impact on learning experiences if I miss tutorials and classes due to internships?
- Can I attend other tutorial sessions if I cannot make it to my own tutorial sessions?
- I am interning while taking this course. How does this impact my learning in this course?
- Will lectures be recorded for replay if I am unable to attend classes?
- What is the individual written assignment?
- What is the level of programming in this course? DevOps?
- Is Project Management course a pre-requisite?

Industry Domain for Course

- To illustrate important concepts, banking and finance service industry is selected as the main industry domain for lectures and projects. Fintech Challenge Statements will also be used in your projects.

What are the Rules?

- If you don't understand something, please ask. Participation is an important aspect of learning.
- If you send me an email (disfsb@nus.edu.sg), start subject title with "IS4301:".





About Myself - Always learning ...



Formative 1990-1999

Teaching and
Research (NUS ISS,
UT Austin)

Fighter Jet
Simulator

Banking IT Ops
and Innovation

Entrepreneur Dr.
World/Raffles
Medical – Mobile
EMR



From 2000

Advisory Boards:

- Keppel Corp Technology Advisory Panel
- National Research Foundation Advisory Comm
- NUHS Group IT Committee
- Singapore Poly EEE Dept Advisory Comm
- Chairman NICF Steering Comm
- ISCA IT Adv Comm Chairman, CFO Comm

Adjunct Professor



IBM – first Software Architect
India/South Asia, first CTO ASE/
IBM Distinguished Engineer in /



Global Head
T&O Digital
Transformation
(Retail Banking,
Private Banking
and Wealth
Management)



Managing Director and
Group Head, Technology
Services, T&O

Deputy Chief
Executive
(Services,
Governance,
CyberSecurity)



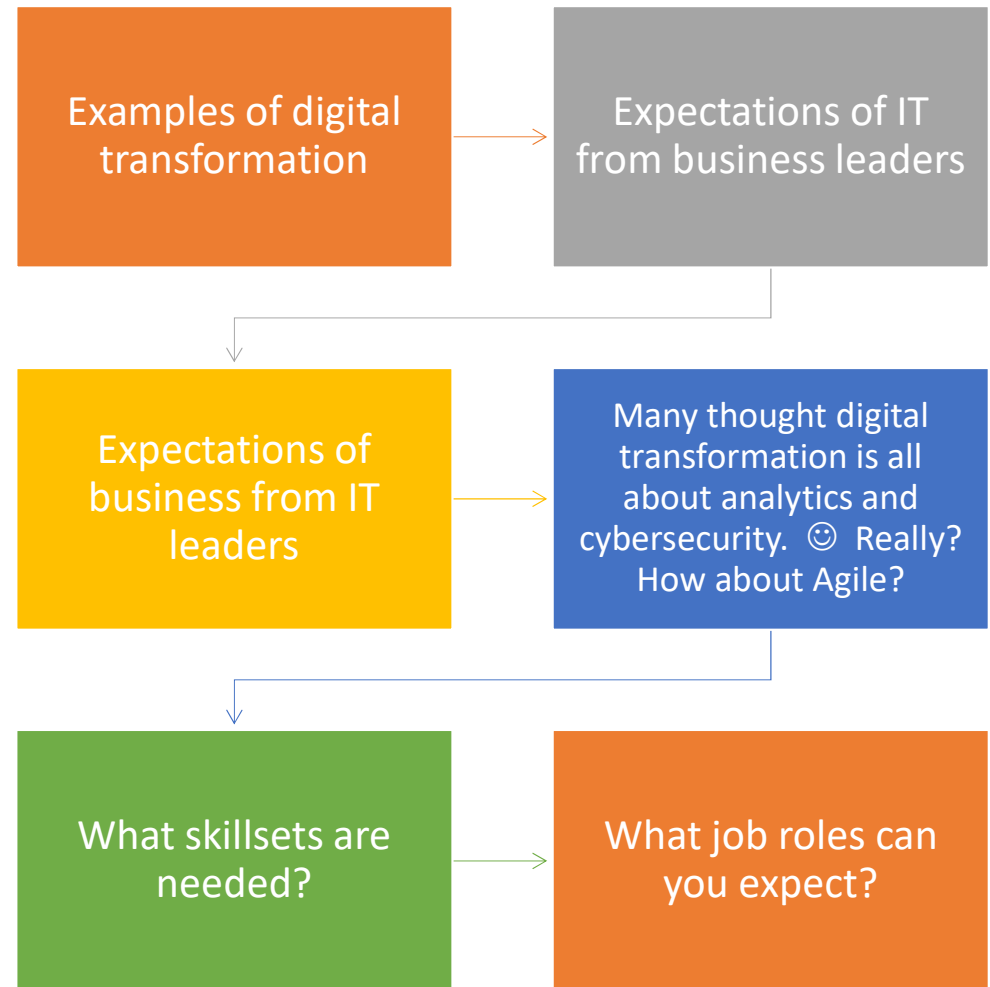
Your Teaching Assistant

- Teaching Assistant and Tutorials:
 - Dr. Mariya Tsyganova, mariya@nus.edu.sg



Digital Transformation

– Is it another buzzword?



What's in Next Lecture?

- Overview of Agile Methods and DevOps
 - Traditional SDLC software development and operations vs. Agile Methods,
 - impact to business and IT agility,
 - Agile Manifesto,
 - Agile Development Introduction,
 - Agile Workspace,
 - Case Studies including Banking.