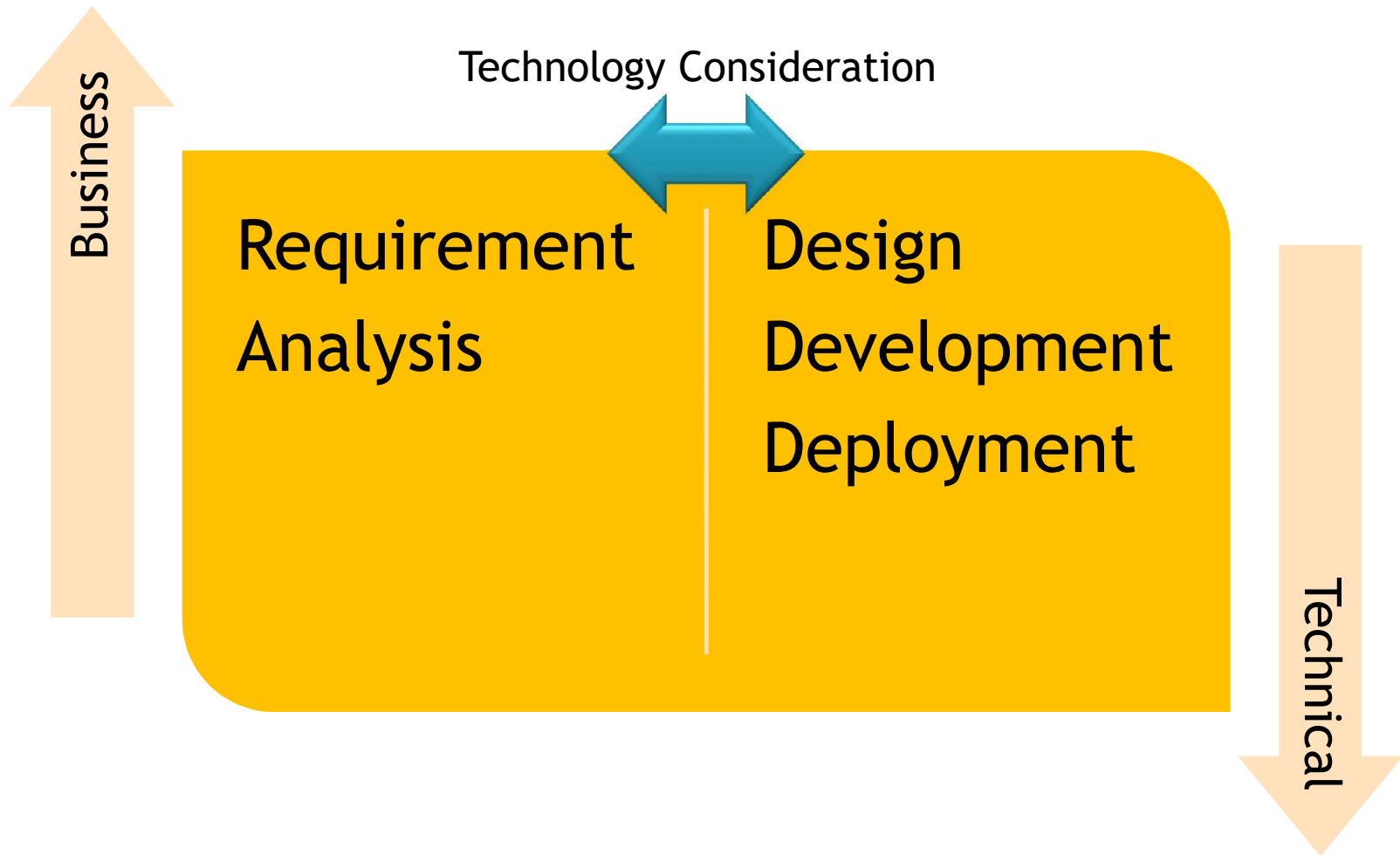


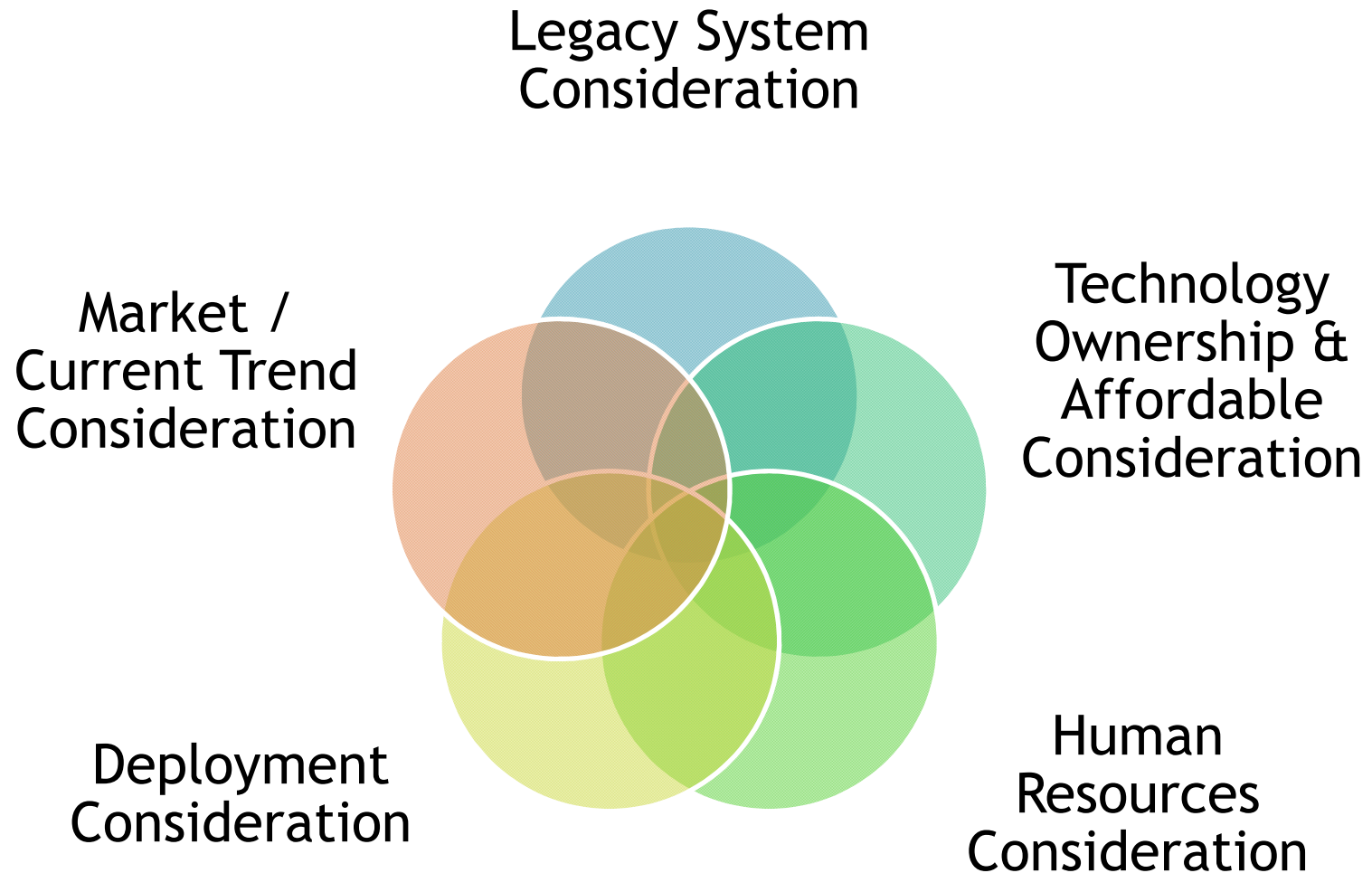
# Software Development Technology

Ridi Ferdiana  
[ridi@acm.org](mailto:ridi@acm.org)  
Version 1.0.0

# Technology as a key factor development consideration



# Technology as an enabler

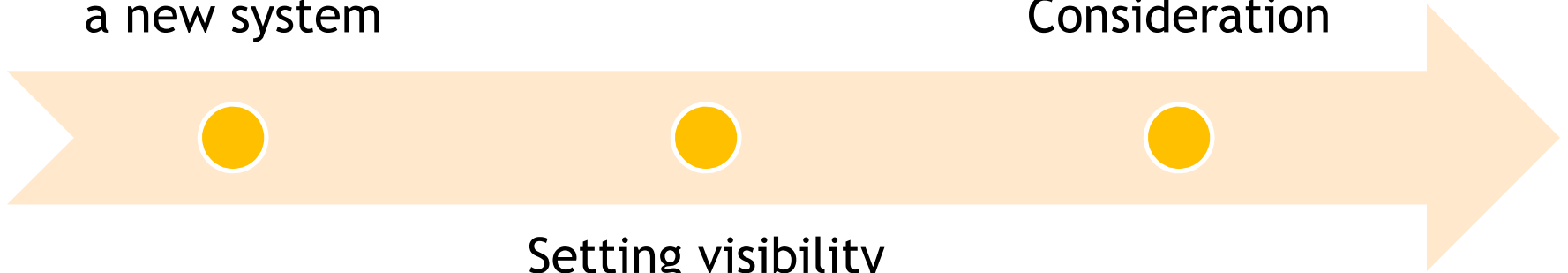


# From business problems to requirement

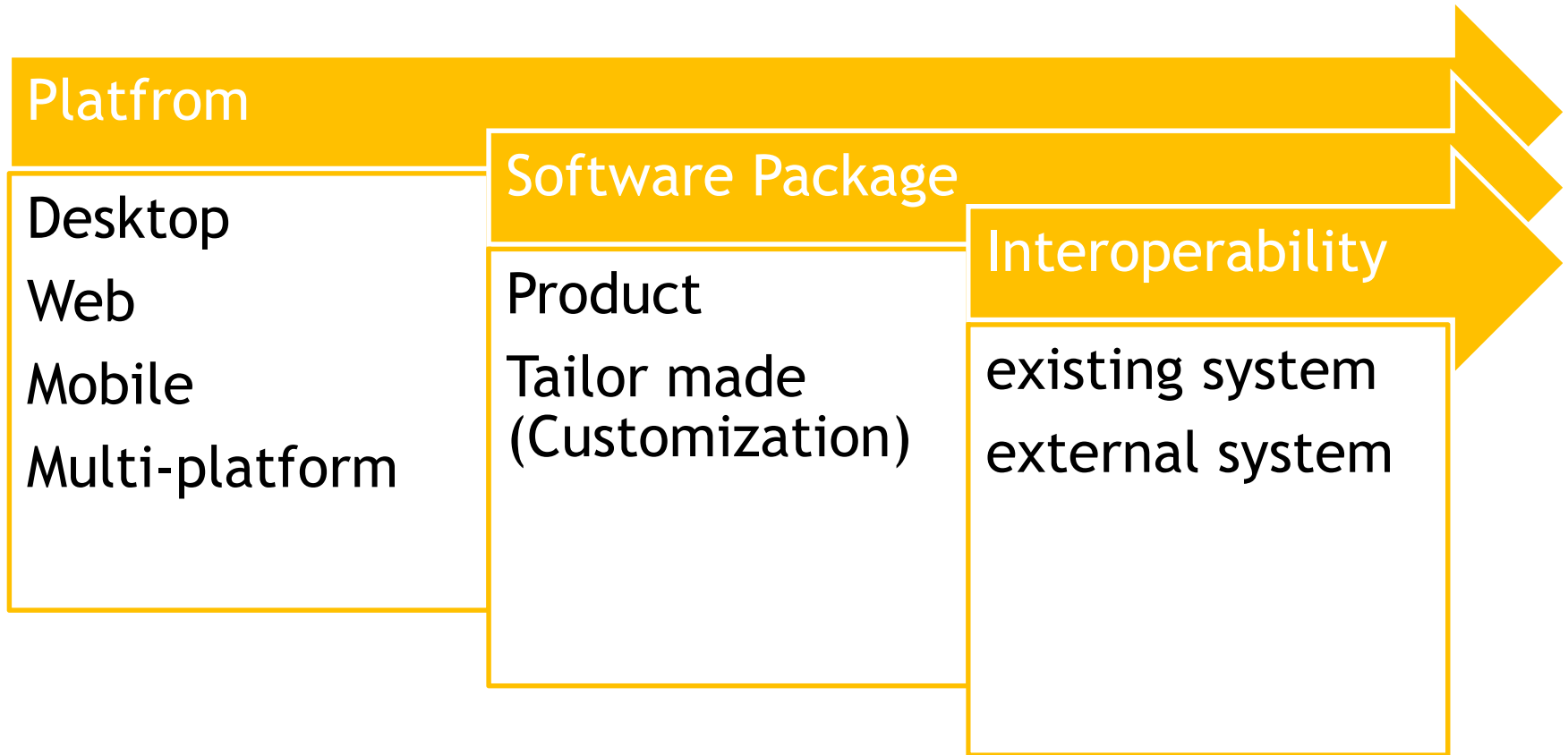
Legacy System  
Improvement or  
a new system

Buy or Build  
system /  
technology  
Consideration

Setting visibility  
from the existing  
technology /  
system



# From Analysis to Design



# From Design to Development

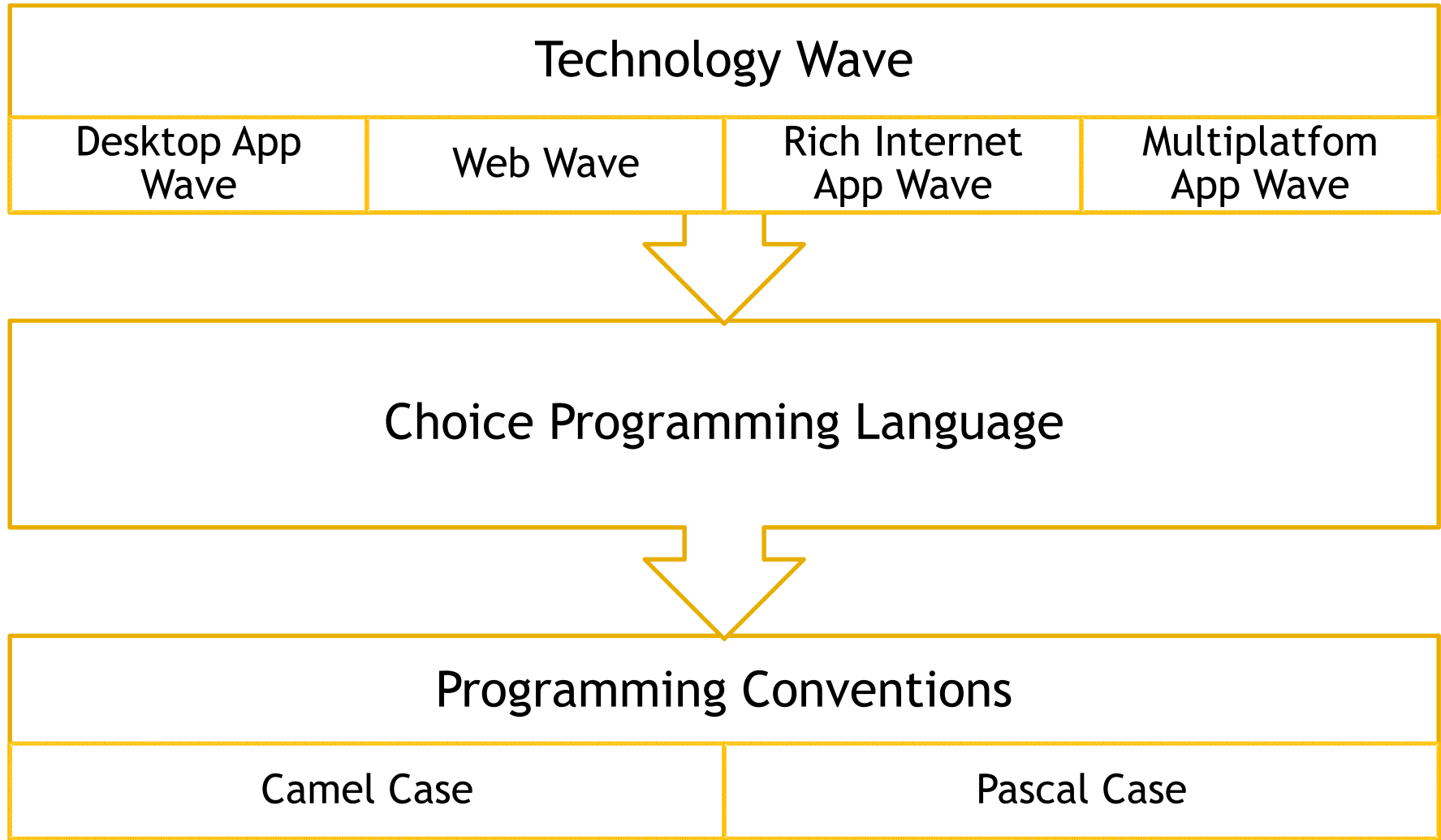
## Software Development Tool

- Computer Aided Software Engineering
- Integrated Development Environment
- Codes Editor
- Build and Compiler
- Third Party Component

## Application Lifecycle Management Tool

- Source Code Versioning
- Project Management Software
- Computer Supported Collaborative Work

# Key Construction Decision



# Major Software Development Practices

## Coding

- Code design (design patterns)
- Coding conventions
- Coding practices (Open Source, 3<sup>rd</sup> Party, Framework)
- Technology wave comparison

## Teamwork

- Integration procedure
- Development technique (individual, pair)

## QA

- Creating test case by developer / by tester
- Unit test / without unit test
- Step through / trial and error
- Review or Debug

## Tools

- Choose revision control
- Language and compiler version
- Software Development framework
- Integrated development tools



# From Development to Deployment

## Testing Agent

- Automated
- Manual

## Release Management

- Publishing Tools
- Configuration Management

## Documentation Software

- Productivity Software
- Help Generator
- Knowledge Management Portal

# From Deployment to Maintenance

Support System

Email Support

Ticketing System

Instant Messaging Support

Defects and Changes

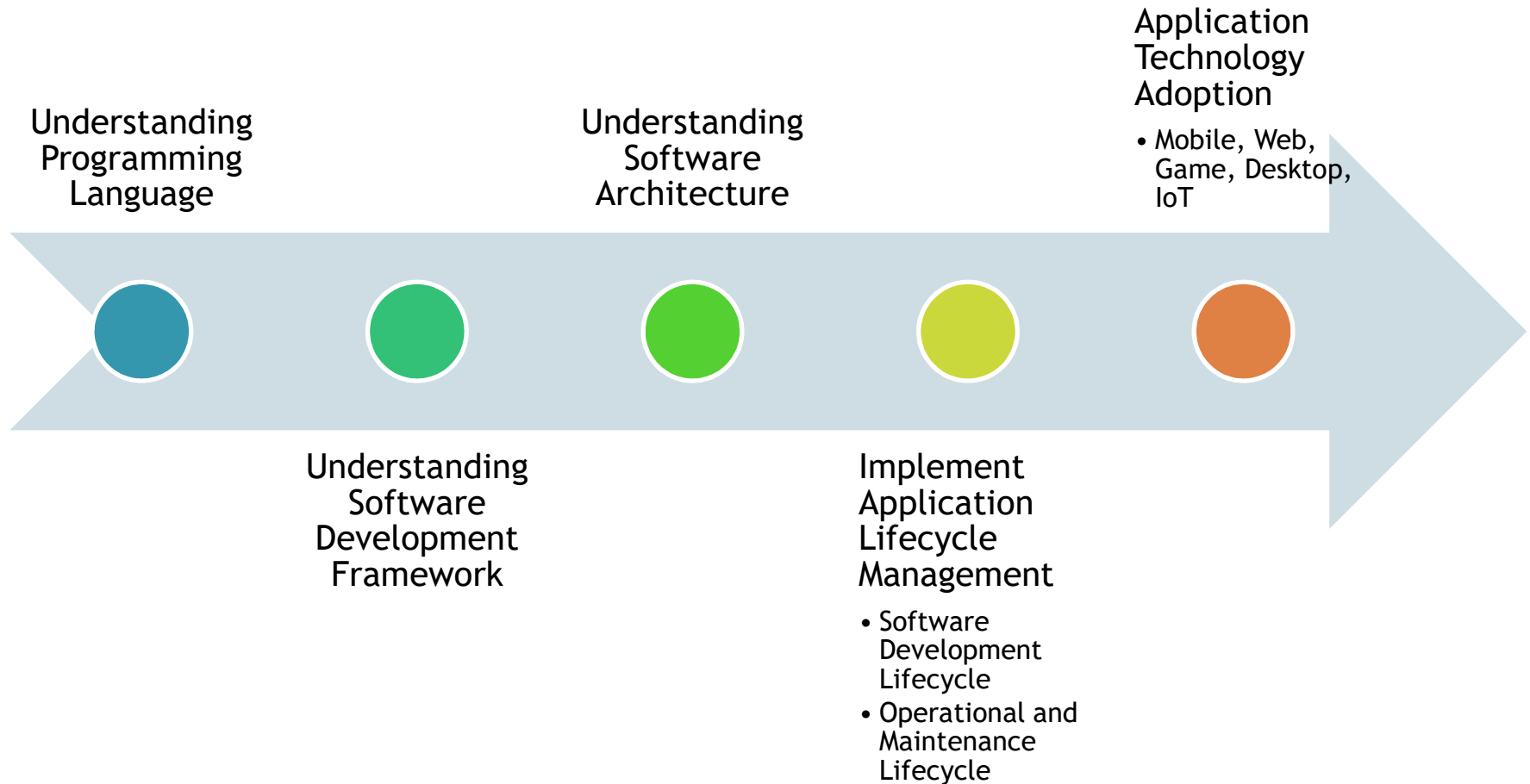
Project Management Changes

Commerce System

Bill and Payment System



# Developers Learning Path



# Key Contemporary Technology

Object Oriented  
Language (C++,  
Java, C#)

Web Programming  
Language  
(Javascript, PHP,  
ASP.NET)

Web Interface  
Language  
(HTML5, CSS3,  
RIA)

Web  
Communication  
Technology (AJAJ,  
AJAX, SOAP/WS)

Database  
Technology (SQL,  
ORM, Big Data)

Deployment  
Technology (Multi  
Target, Cloud,  
IoT)

# Key points

- The idea of software development technology is how to ‘fit-in’ the technology into the ‘proposed solution’
- Development technology depends on five main considerations.
- The development technology works across the SDLC from requirement to deployment

# References

- McConnell, S. 2004. Code Complete. Microsoft Press
- Mitchell, C.J. 2002. Concepts in Programming Languages. Cambridge University Press