Công Cụ & Phương Pháp Thiết Kế - Quản Lý (Phần Mềm)

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Using Processes

Contents

1. Why Process is Important
2. What is a Process?
3. What Processes Will I Need?

Referenced from Prof.Redley of CMU

Previous lesson question

- The team is build in…?
  - **TRUST**
- What is "A results-driven structure" characteristic?
  - **Roles & Accountabilities**
  - **Communication**
  - **Monitoring individual performance & providing feedback**

Referenced from Prof.Redley of CMU

Previous lesson question

- Two ways of team member? competencies are?
  - **Technical**
  - **Personal**
- Characteristics of good team leader?
  - **A consistent message**
  - **Unleashing talent**
  - **A decision making climate**
  - **Ego suppression**
  - **Leaders create leaders**

Previous lesson question

- **What are team member's competitions?**

  A. Technical

  B. Personal

  C. Salary

  D. A and B are correct

Previous lesson question

- **Why do we need to build the teamwork?**

  A. The software projects are too large and those a diverse set of skills and roles

  B. Experienced programmers who will teach those less experienced

  C. To do inspection

  D. To prevent defects

Why Process is Important

- What has the biggest impact on project success and quality?

Capabilities of Individual Programmers		Team Processes
Individuals	Small Teams	Large Teams

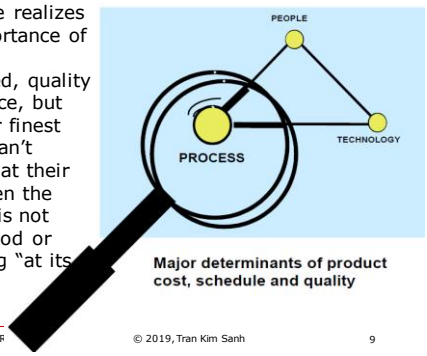
- What processes, standards & conventions will your team need to be successful?

What is a Process?

- A process is a set of practices performed to achieve a given purpose; it may include tools, methods, materials, and/or people
- While process is often described as a leg of the process-people-technology triad, it may also be considered the "glue" that unifies the other aspects

Why Focus on Process?

- Everyone realizes the importance of having a motivated, quality work force, but even our finest people can't perform at their best when the process is not understood or operating "at its best"



Major determinants of product cost, schedule and quality

Example 1

Example 2

- http://vhr.vn/quy-trinh-giao-dich-vinhomes-riverside-hoa-anh-dao.html

Example 3

Process Improvement Premise

- "The quality of a product is largely determined by the quality of the process that is used to develop and maintain it."

  - Based on Total Quality Management principles as taught by Shewhart, Juran, Deming and Humphrey

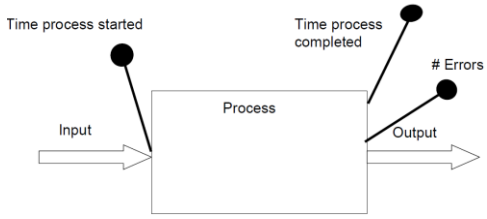
How Do We Define a Process?

- Processes do or transform something

- Two Examples in Readings:
  - ETVX
  - Swim Lane

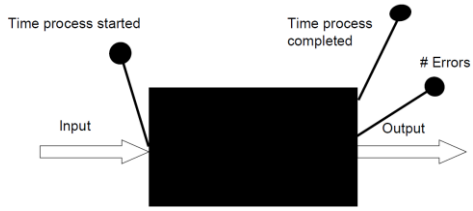
Process Measures

- You can specify where the process measurements should be taken



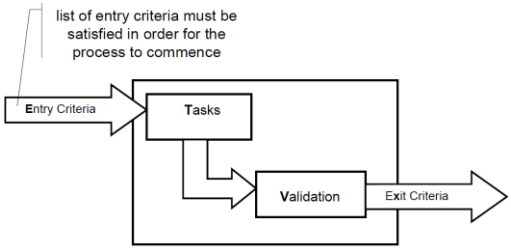
Black & White Box

- Black Box: You can't see into the process

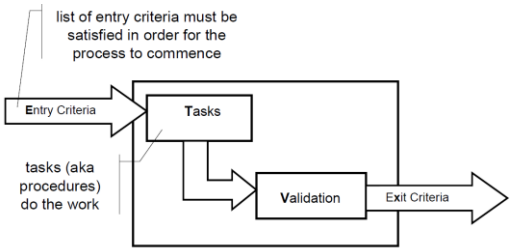


- White Box: You can see into the process

Entry, Tasks, Validation, eXit



Entry, Tasks, Validation, eXit



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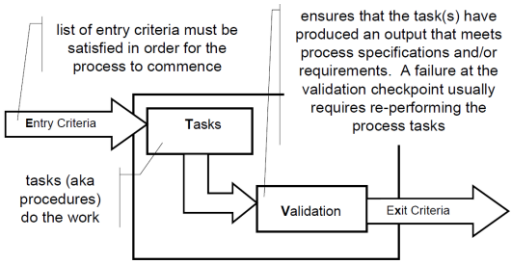

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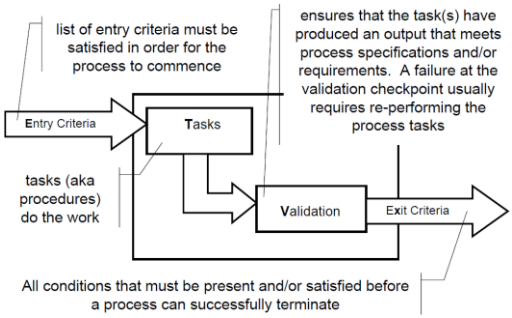
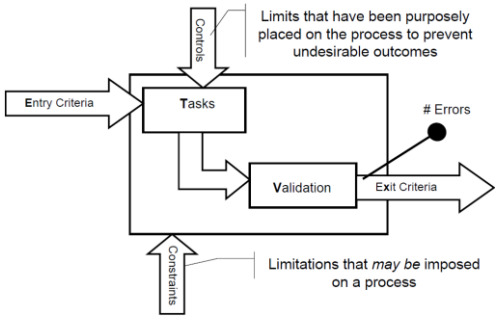


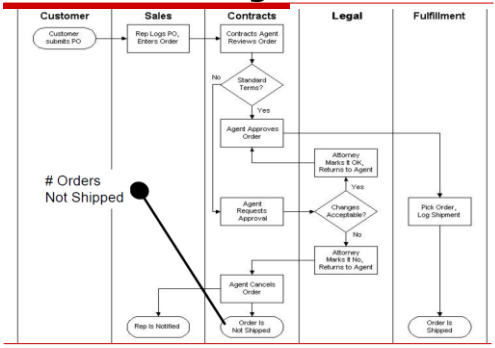
Controls and Constraints



Controls and Constraints

- Controls
  - Designed into the process to produce adesirable outcome. Examples:
    - ✓ Policies
    - ✓ Error detection and correction processes
- Constraints
  - A limitation to the process (or environment) that may impact process effectiveness and/or efficiency. Examples:
    - ✓ Technical capabilities of team
    - ✓ Available time or resources
    - ✓ Transmission speeds

Swim Lane Diagram



Development Processes

- Product requirements
- Top level architecture, technical approach, and system design
- Component and unit specifications and design
- Implementing
  - Coding
  - Unit and integration testing
  - Implementing product changes
- Development metrics definition, collection & analysis

Infrastructure Processes

- Source control
- Configuration management
- Continuous integration
- Change control
- Infrastructure metrics definition, collection & analysis
  - Defect tracking

Project Management Processes

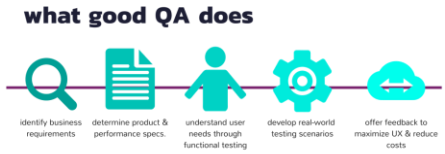
- You'll also need to consider processes for:
  - Project charter and business case
  - Project planning
  - Project scheduling
  - Project budgeting
- Project and Program metrics definition, collection and analysis
  - Project tracking
  - Project reporting
- Project control

Quality Processes

- Quality planning
- Quality assurance (Defect Prevention)
- Quality metrics definition, collection and analysis
- System testing
- Usability testing
- Performance testing

Quality Processes

- Regression testing
- Inspections



Support Processes

- System packaging and delivery
- User documentation & training
- User support, Product returns
- Problem logging and initial triage
- System upgrades and routine software maintenance
- Support metrics definition, collection and analysis

Along with Process ...

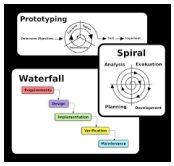
- Deliverables (Artifacts): The output of each process. Some deliverables are for internal use only, while others are packaged with the product
- Standards: The rules by which a process is implemented. Standard electrical plug in countries, for example
- Policies: An order, typically from senior management, describing expected behavior by employees
- Roles & Responsibilities: Who is responsible for what and when
- Measurement definition, collection and analysis

How Much Process Is Right?

- Whatever works for your team!
- Optimal, yet minimal
  - More process is not necessarily better
- Each process must be an enabler for the team
  - If it isn't, change the process until it is
- Each team member must buy in to each process
  - If they don't, find out why and fix it

How Much Process When?

- Start with:
  - Basic Planning
  - Change Management
  - Quality
- Better:
  - Add Continuous Integration
- Best:
  - Use methodology pieces that work for you



Tools

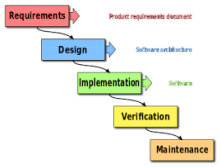
- Most of the software development processes can be automated
- Many of the available software development tools are free (open source)
- Make sure that any tools you acquire integrate well with existing or planned processes

Methodologies

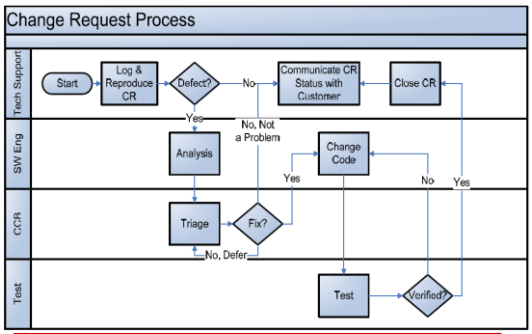
- The documented collection of policies and processes used by a development team or organization to practice software engineering is called its software development methodology (SDM) or system development life cycle (SDLC)
- You can use a defined methodology to avoid having to define your own processes
  - Traditional
  - Agile

Group discussion

- What are the differences from Waterfall process compare to Scrum process (4 students – 10 minutes)

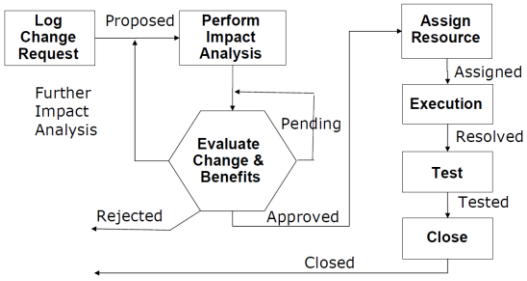


Example Change Request Process



Example Process

- Change Request (CR) State Diagram



Summary

- You will need some amount of process as soon as you are no longer working alone
- Methodologies can reduce the time needed to build an agreed upon set of processes for the team to use
- Change a process if it isn't working for your team

Video link

- https://www.youtube.com/watch?v=laSrDtYtkXU&list=PLCku-ULHIQvlLC2gFqeoX-JtbEvmeoDhl
- https://www.youtube.com/watch?v=5A5XCuWMG4o&list=PLCku-ULHIQvlLC2gFqeoX-JtbEvmeoDhl&index=2

References

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- https://en.wikipedia.org/wiki/Software_development_process