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# **Analysis of Software Process Assessment Methods' Design from Engineering Design Perspective**

*Mohammad Zarour*

*Petra University, Amman, Jordan*

*Alain Abran, Jean-Marc Desharnais*

*École de Technologie Supérieure, Montréal, Canada*

# Introduction

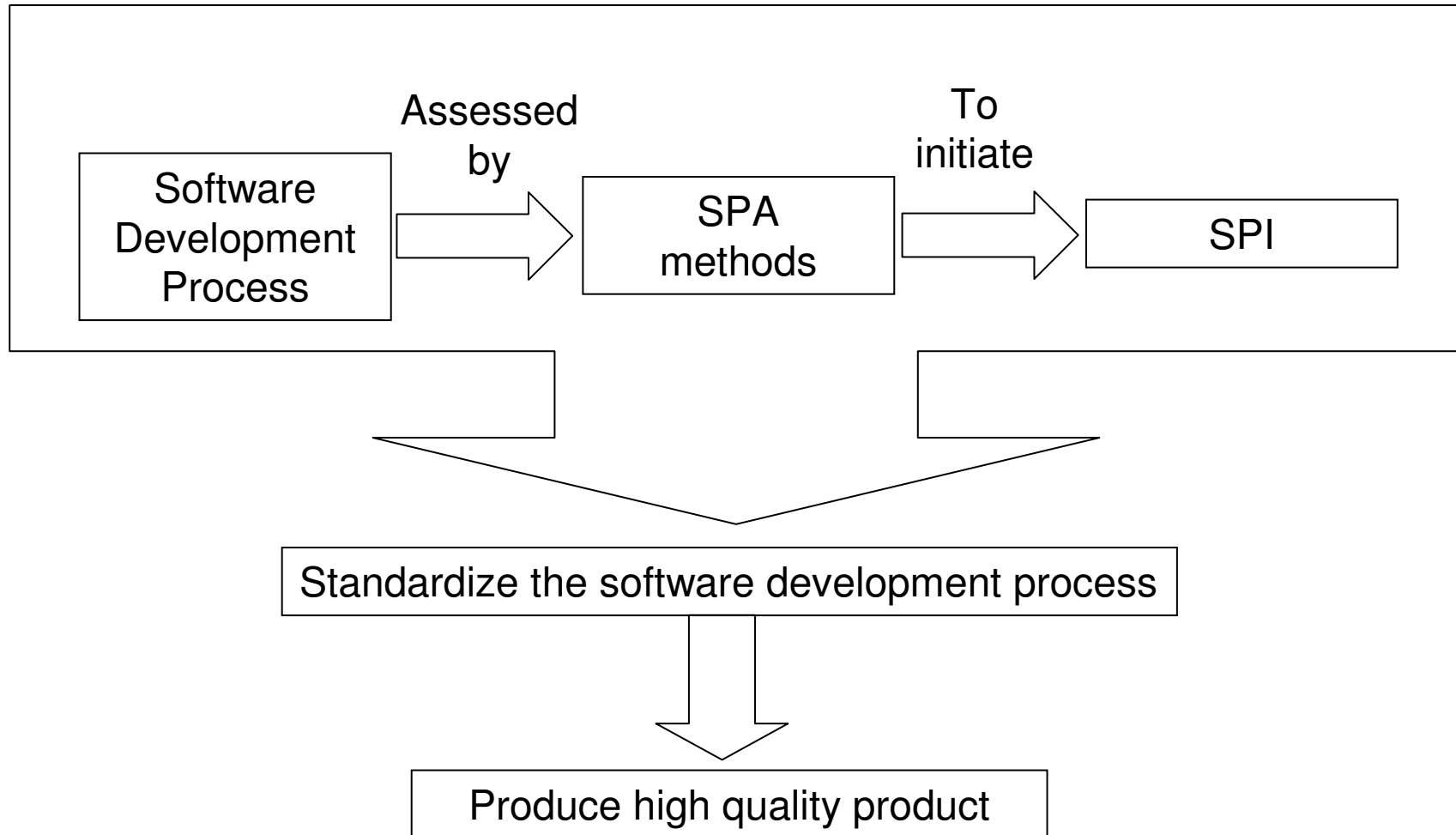
## Current status of SPA field

- **Device new SPA methods**
- **Conduct case studies to test SPA methods and present results and findings**
- **Discuss success and failure factors related to assessment and improvement initiatives**
- **Compare between different SPA methods**

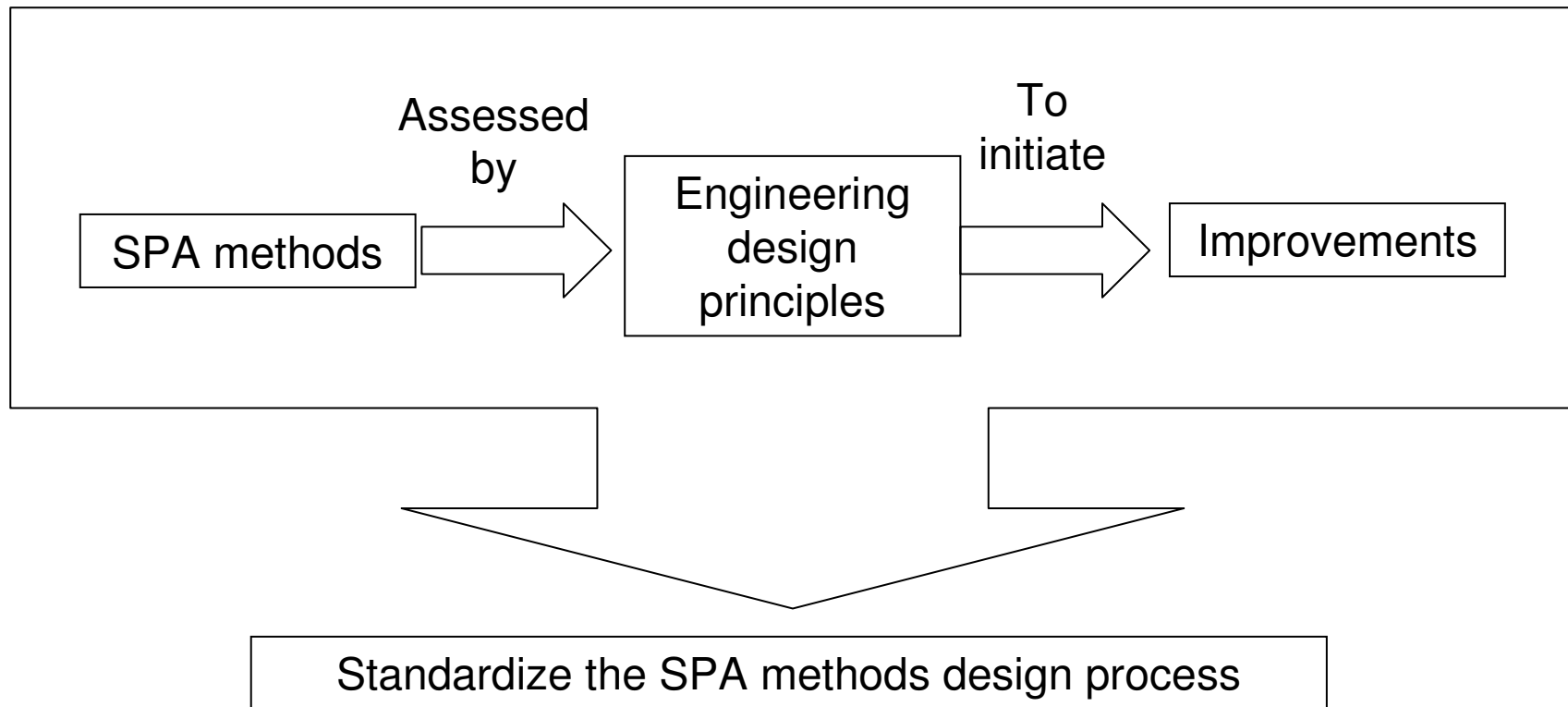
## Study Focus

- **This work aims at improving the maturity of SPA methods design process by aligning it with the engineering design process**
- **Accordingly, This study forms the starting point to analyse the SPA methods from engineering viewpoint (Top-down view)**

## View 1: Software Process improvement



## View 2: SPA Process Improvement



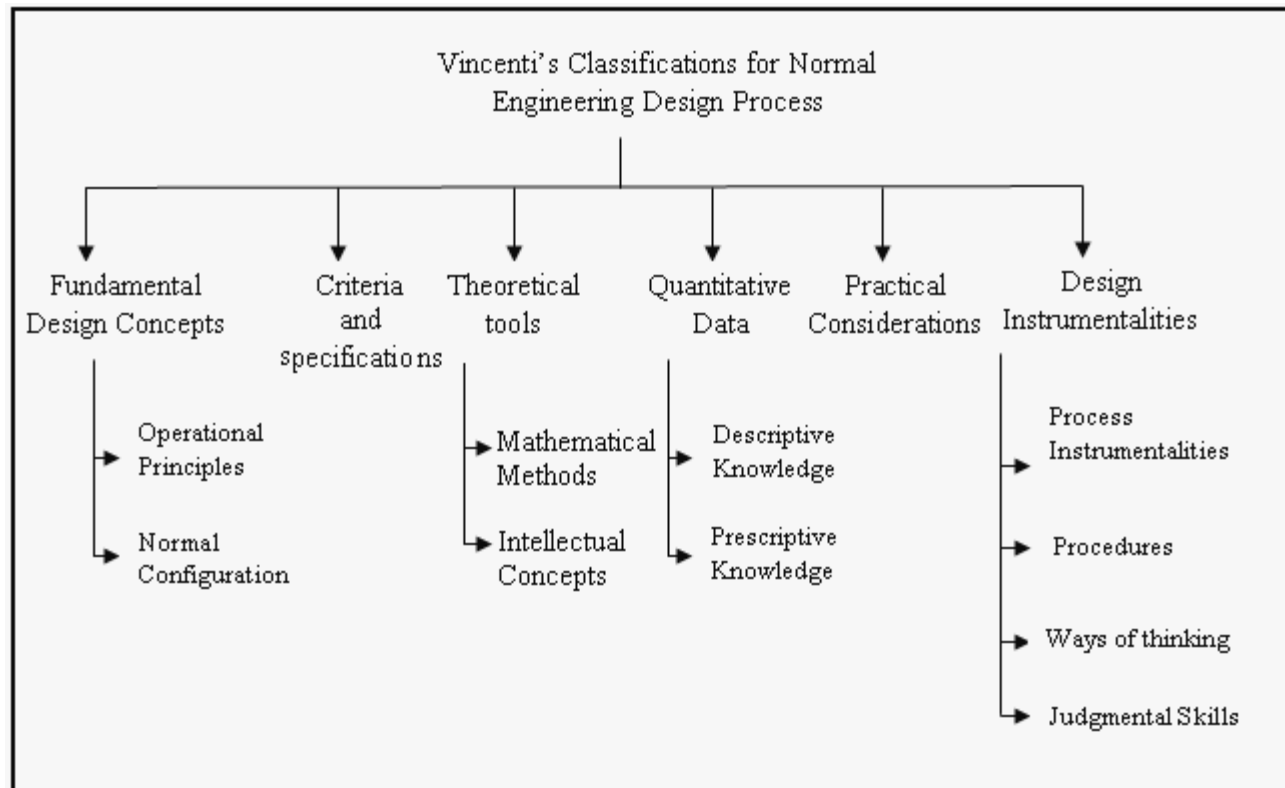
# Engineering Design Principles Vincenti's Classifications

Vincenti stated that:

- A complicated technology can often be regarded as a device
- Designing a new device is mostly based on a vicarious model

- Vincenti's classifications can be used as an analytical tool to study the coverage of different engineering topics with other domains such as software engineering.
- Vincenti stated that the six categories are complete while the details and contents for each of them are not.
- Vincenti stated that the six main classifications are not entirely exclusive since some items of knowledge can embody the characteristics of more than one category.

# Vincenti's Classifications



## Analyses Results

### SPA method design criteria based on fundamental design principles

- **Identify Process reference model.**
- **Identify Process assessment model.**
- **Define business needs before assessment.**
- **Make use of previous assessment reports.**
- **Refer to the organizational documents and reports while preparing for the assessment.**
- **. . . etc**

## Analyses Results - Continued

# SPA process design criteria based on criteria and specifications

- **Specify the number of processes to be assessed.**
- **Specify the processes to be assessed.**
- **Define the scale and limits used to assess the process.**

## Analyses Results - Continued

### SPA method design criteria based on theoretical Tools

- **Specify the theoretical tools used to select the processes to be assessed.**
- **Specify the theoretical tools used to define the rating process.**

### SPA method design criteria based on quantitative data

- **Specify what Data/indicators are used to determine the scale for each process.**

## Analyses Results - Continued

### SPA method design criteria based on practical considerations

- **Specify how the processes to be assessed are selected.**
- **Specify the target scaling level for the organization.**

### SPA method design criteria based on Instrumentalities

- **Define the sub divisions of the assessment process.**

## Conclusion & Future work

SPA methods, as a device, can be studied from an engineering viewpoint based on Vincenti's classifications.

The resulted design criteria are vital for designing SPA methods

The resulted design criteria can be used as guidelines to direct the design process of the SPA method.

Further design criteria can be explored and added to the collected criteria

**Thank you...**

