

Evidence-based steering: From Performance Indicators to 'Big Data'

Dr. Maarja Beerkens

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Twds ‘evidence-informed’ steering ...

- **What is quality?**

Even if we limit to learning aspect of knowledge and compencies ...

A moving target: civic responsibility, study progress, labour market outcomes, ‘Bildung’

- **What to measure and how to measure?**

Black box of student learning: e.g. rankings vs AHELO experiment

Difficult causal links, effects not stable

- **What is an effective steering model?**

State-centric

Markets

Professional self-regulation; institutional management

Steering by performance data

1. External accountability and steering

- Formula-based funding (e.g. FI: study success rates, labour market)
- Performance contracts (e.g. NL: study duration, students in Honors)
- System-level performance: international benchmarking

2. Creating 'markets' (Consumer information)

- Rankings
- User guides: student satisfaction, but also labour market results

3. Internal accountability and learning/improvement

- Program level accountability
- Input for organizational learning and improvement

.... Purpose defines what indicators fit. A myriad of indicators....

PIs and management models

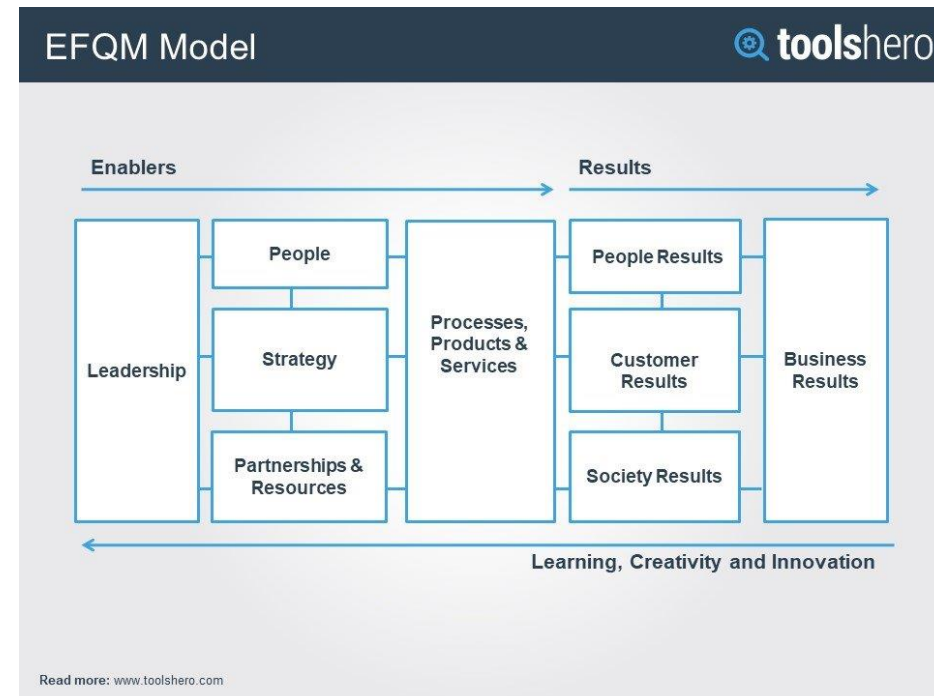
European Foundations of Quality Management (EFQM):

- ‘Enablers’: Leadership, People, Policy & Strategy, Partnerships & Resources, Processes;
- Results: People results, Customer results, Society results and Key Performance results

Balanced Scorecards (e.g. UK)

- Customer perspective
- Internal perspective
- Financial perspective
- People perspective

‘Lead’ and ‘lag’ measures



Some dilemmas for good indicators

Simplicity
vs
comprehensiveness

Aggregated
vs
Individualized

Actionable
vs
manipulable
(vs dysfunctional)

Evolution in performance data:

Drivers

1. Interest in performance

Effectiveness, efficiency

but also governance model (autonomy)

2. Technological development to analyse data

ICT tools to analyse data

3. Data available

The effect of digitalisation: personnel, finances, learning systems

Evolution of Performance Data

1. Technical output measures

- 1990s: Challenge to refocus from input measures to actual output
- E.g. publication and citation scores, graduation rates, employment rates

2. Responsive measures and advanced output measures

- stakeholders: student satisfaction surveys, alumni and employee surveys
- advanced output measurement: engagement evaluations, AHELO experiments

3. Advanced analytics and 'big data' promise

- ICT capacity: storage, tools to analyse complex data.
- Data availability: digital footprint (blended classrooms, learning management systems, discussion fora/chats, swipe cards etc.)

‘Big data’ and Higher Education

- **Learning Analytics**

goal: to understand a learning process, improve teaching
focus on individual student and class performance

- **Educational Data Mining**

goal: how to interact with, provide, and manage educational resources (e.g. performance in courses vs change of the program)
focus: curriculum, program (institution)

- **Higher Education (Business) Intelligence**

goal: institutional effectiveness
focus: e.g. personnel, cost optimization, study places, etc.

- **Artificial Intelligence**

Applications

- **Performance Prediction:**

by analyzing student's interaction in a learning environment

- **Predicting dropouts:**

analyzing behavioral responses to material: facial expressions of the students to predict their engagement, frustration and learning outcomes of students

- **Intelligent feedback**

Learning systems can provide intelligent and immediate feedback to students in response to their inputs which will improve student interaction and performance.

- **Course Recommendation**

New courses can be recommended to students based on the interests of the students identified by analyzing their activities. Advise on a field of study.

- Etc, etc.

Big data and external steering

- Risk based regulation
 - Identify potential “problem” universities/programs
 - Inspiration: social media feedback for restaurants and health organizations
 - Currently used/considered: students’ official complaints
 - Potential: social media data?

Obstacles and challenges

Privacy related problems

ensuring privacy, consent

ownership of big data (social media)

Capacity

link between technical expertise and content expertise

ability to ask a good question

Transparency and learning element

obscuring accountability through an overly technical and incomprehensible data

Technical obstacles (declining though)

storage

size of the data huge, analysis of the data may consume a lot of time and resources. (scaled architectures)

user-friendly tools ... also a danger

Concluding remarks

- Performance data requires always ‘qualitative’ decisions:
- Steering happens in various ways
 - Incentives
 - Socialization, changing norms.
 - Culture
- ‘Big data’ potentially a big shift:
 - Potentially losing interest in static, slow indicators.
 - Close of real-life data. Pro-active data. Is there still a place for PI?