Necessary skills of Translators from a BDSS perspective

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Translation?

- Market & Strategy
- Translator
- Knowledge & Systems
- Structures & Processes

Translation for Operational decisions
Translation for Strategic decisions

EMMC Workshop – Hamburg 2019

COMP SELECTOR
Polymer Composites
Business Decision Support System
BDSS Components

User Interface Management

Model Management

Needed Information

Data management

Business Information

Organizational Information

External Information

Material Model

Cost Model

LCE Model ...

Question?
What Business and BDSS means?

Business: The complete (cross-functional) operations of a company

The Translator should have knowledge (even limited) on the different dimensions of the business within the company.
Translators need to integrate Product Development, Market, Finance, supply Chain or ecological footprints for decision making.
Translation Process and steps

1. Characterize (Modelling Data)
   Important material and Process behaviors

2. Measure key Attributes
   Relative to material & manufacturing process KPIs

3. Apply Analytics and Post-processing to produce actionable information and choices.

Translators need of a transparent translation steps and methodology
Translation Steps and skills needed

1. Understand Business Case
2. Understand the Business Process
3. Translation to Business Workflows
4. Implement the Business Process
5. Estimate Business KPI
6. Modelling executor & validation
7. Translation to Modeling Workflows
8. Analysis of Existing Data
9. Understand Industrial Case
10. Post-Process and Visualization to client
Translators need clear and shared Taxonomy
<table>
<thead>
<tr>
<th>Definitions and Taxonomy</th>
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| Performance | Performance = capabilities (state or level) of the object. The meaning of performance in the context of BDSS is not “execution of a task or function” |
| Attribute | A quality or feature of the Business Entity under consideration |
| Value | An element from an ordered set used to signify the position of an element with respect to other elements in the set, e.g., as a number and unit on a scale of temperature (scale is the ordered set). |
| Target | Goal or objective. Goals are used in the language to represent business objectives that companies aim to achieve (e.g., “Increase profits”). |
| Target Value | The value of the KPI as evaluated by the BDSS system using e.g., modelling workflows, databases, cost sheets, etc. |
| Indicator | Performance Indicators (PIs) are indicators that measure the performance of key activities and initiatives that lead to the success of goals measured by KPIs. Similarly, to KPIs, PIs have clearly defined thresholds. |
| KPI | A performance indicator that has a target value and is declared to be of importance to the company. Key Performance Indicators (KPIs) are indicators directly correlated with the satisfaction of a business goal. For example, “Increment in profits by 10%” is a KPI, it provides information about the results of the business objective “Increase profits”. |
The translator should be able understand the descriptive properties of indicators together with the tools needed to calculate them.
Business Process and Decision making

Translator

KPIs

Set of requirements
Design request

Assess in-capabilities

New tire design

Design team

Release new SPEC

Acquire raw materials

Material Selection

Purchasing

Material Business Entity

Change confirmation

Sign-off request

Order

Payment

Build tire

NewSPEC needed

Tire ready

Yes

Whole Process to be re-evaluated

Ready for mass production

New tire design

Selected/Design Material.

Technology Routes developments

Business Process and Decision making Process

Translators need knowledge about the Business Process and Decision making Process
Example from the Composite Manufacturing:

... and knowledge about the Technical aspects of the Business
Continuum Modelling
Atomistic and Molecular Modelling

...and Idea generation capability.
Translators need knowledge about required tools and software and hardware in-house and on the marketplace.
Material/ Process/Market /Regulation/….  

- Raw material costs  
  (cost, delivery, etc.) 
- Raw materials availability  
  (diversity of suppliers, on time, etc.) 
- Complexity  
  (nr of processes, nr of materials, etc.)

- Conformation  
  (polymer length, architecture, filler geometry, etc.)
- Thermodynamics  
  (compressibility, segmental friction, potentials, etc.)
- Dynamics  
  (plateau modulus, etc.)

Business – cost tracking
- Direct cost
- Process complexity

Actionable Choices (Decision)  
KPIs: Cost & performance, IP

- Raw material costs
- Raw materials availability
- Complexity
- Conformation
- Thermodynamics
- Dynamics

Product Development KPIs
- Viscosity
- Stress relaxation
- Modulus
- Diffusion

Footprint

Capability to Select KPIs and use them in a practical way in decisions-making
Reasoning skills and Capabilities
"using the facts and figures to make decisions."
ON COMPOLECTOR BDSS

COMPOSELECTOR BDSS is software tool that is developed for a specific purpose of assimilating pertinent data and generating a detailed analysis for decision-making in the field of composite materials and processes.
Thank you!