A rationale approach of cognitive rehabilitation has to be based on clear definitions of the **neurocognitive domain** and its components and a detailed understanding of the neuronal circuit networks implied in their mechanisms. As the neurocognitive functions represent a fundamental aspect of the activity of the human mind and brain, the recent classification and definitions of the neurocognitive domains and their subdomains in DSM-5 represent an important step forward. In the same time, it is fundamental to understand how these functions are disturbed in different neurological diseases leading to neurocognitive impairment with different degrees of severity. Not only severity is defined in DSM-5, but also the etiology of cognitive impairment has to be identified and defined, as a premise for its management - including rehabilitation. A quite close approach - even if not identical, of this domain of neurology may be found in the ICD-11 project; this is an important aspect as nowadays we need a common understanding of neurocognitive functions and their impairment for all specialists in the world implied in neurocognitive disorders and their management: neurologists, psychiatrists, neuropsychologists, neuropharmacologists, specialists in neurorehabilitation, a.o. This approach is also important because it implies the understanding of the interactions in normal and pathologic conditions of neurocognitive functions with other integrative functions of the human brain, in particular with behavior and its different components (including also the interactions with consciousness, perceptions, disposition, motor behavior and autonomic reactions) mediated by the modular organisation of the extremely complex and well organized neuronal circuit networks.