Chapter I
Contributions and Limitations of Autonomous Cooperation and Control in Logistics

Michael Hülsmann, Bernd Scholz-Reiter, and Katja Wiedt

1.1 In Search of the Optimal Degree of Autonomous Cooperation and Control in Logistics

The realization of autonomous cooperation and control in logistics is not a question of either external control or autonomous control. Rather, it implies the intention to increase the degree of autonomous cooperation and control [9]. This means that at least one of the constitutive characteristics – autonomy, decentralized decision-making, interaction, hierarchy and non-determinism [24] – is ceteris paribus intensified. Technologies (e.g., the intelligent container [15, 16]) or methodologies (e.g., collaborative transportation planning [17]), whose implementation or usage does augment these characteristics in logistics processes can therefore be regarded as enablers for autonomous cooperation and control. In contrast, organizational approaches, technological solutions or planning and controlling routines, which lead to a diminution of the constitutive characteristics, can be appraised as impediments for autonomous cooperation and control in logistics.

Consequently, two main questions arise: Firstly, which degree of autonomous cooperation and control is feasible? Secondly, which degree of autonomous cooperation and control is reasonable? In other words: which technologies and methodologies are able to increase the degree of autonomous cooperation, how effective are these measures and what is the adequate implementation level in logistics systems?

The underlying purpose is to find the "optimal degree" of autonomous cooperation and control of logistics processes. This leads to the necessity to know the

M. Hülsmann (Ed.)
SyM, Jacobs University Bremen, Campus Ring 1, 28759 Bremen
e-mail: m.huelsmann@jacobs-university.de

B. Scholz-Reiter
IPS, IBBFA, Universität Bremen, Hochschulring 30, 28359 Bremen
e-mail: bs@ibba.uni-bremen.de

K. Wiedt
GFL, Jacobs University Bremen, Campus Ring 1, 28759 Bremen
e-mail: k.wiedt@jacobs-university.de

M. Hülsmann et al. (Eds.), Autonomous Cooperation and Control in Logistics, DOI 10.1007/978-3-642-19469-6_1, © Springer-Verlag Berlin Heidelberg 2011
In order to improve coordination and communication, it is crucial to develop effective and efficient ways of exchanging information and making decisions. This involves not only the use of traditional methods such as meetings and written correspondence, but also the adoption of modern technology and digital tools. By leveraging technology, organizations can enhance their ability to collaborate and make informed decisions more quickly and accurately. This can lead to increased efficiency and effectiveness in both business and personal contexts. Coordination and communication are essential for achieving common goals and ensuring that all stakeholders are aligned and working towards a shared vision.