Managing Sustainability Value in Design: A Systems Approach

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Dissertation submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

Doctor of Philosophy
in
Environmental Design and Planning

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Description of item under review for fair use: Figure 1.1 Paradigm shift in value proposition in construction

Report generated on: 12-13-2012 at : 14:51:15

Based on the information you provided:

**Factor 1**

Your consideration of the purpose and character of your use of the copyright work weighs: *in favor of fair use*

**Factor 2**

Your consideration of the nature of the copyrighted work you used weighs: *in favor of fair use*

**Factor 3**

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: *against fair use*

**Factor 4**

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: *in favor of fair use*

Based on the information you provided, your use of the copyrighted work weighs: *in favor of fair use*
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Name: Vera M Novak

Description of item under review for fair use: Figure 1.2 - Constructive research approach (Lukka 2003)

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: against fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.1 Capitalism at the crossroads (Hart 2005).

Report generated on: 12-13-2012 at : 15:17:10

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: against fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.10 Creating sustainability value (Hart 2003).


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: against fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.11 Sutter Fairfield project cost and timeline (Rybkowski 2009)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: against fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure2.2 Tunneling through the cost barrier (Hawken et al. 1999)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.3 data derived from Arditi and Mochtar (2000)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: against fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.5 - Change in project delivery over time - Reed Construction Data (2011)

Report generated on: 12-13-2012 at 16:35:09

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak
Description of item under review for fair use: Figure 2.6 - Costing terms associated with Target Value Design (Rybkowski 2009)

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak
Description of item under review for fair use: Figure 2.8 Nested relationships, built on Kelly et al. (2004)

Based on the information you provided:

Factor 1
Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2
Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3
Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4
Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: against fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 2.9 Complex system growth model, built on Elgin (1977)

Report generated on: 12-13-2012 at : 15:30:12

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: against fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 5.1 MacLeamy Cost Curve (CURT 2004)

Report generated on: 12-13-2012 at 15:51:05

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 5.2 Nested relationships, built on Kelly et al (2004)

Report generated on: 12-13-2012 at 15:52:32

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Description of item under review for fair use: Figure 5.3 Target Value Design (Ballard 2012)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Description of item under review for fair use: Figure 5.4 Target value design foundational practices (Malcomber 2008)

Report generated on: 12-13-2012 at : 15:54:49

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
Draft 09/01/2009

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Description of item under review for fair use: Figure 5.6 Integrated Lean Project Delivery (www.theboldtcompany.com)

Report generated on: 12-13-2012 at : 15:57:45

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: against fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Description of item under review for fair use: Figure 5.7 http://www.theboldtcompany.com/page/boldthinking

Report generated on: 12-13-2012 at : 16:00:22

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: against fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 5.8 Vision Wheel - Affinity Health Systems

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Figure 8.1 - Experiential Learning Cycles, built on A. Corney, Stanford

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Table 2.1 - Primer on project delivery (AIA and AGC 2011)

Report generated on: 12-13-2012 at : 16:18:02

Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Table 2.2 Comparison of quality performance (Konchar and Sanvido 1998)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Description of item under review for fair use: Table 2.4 IGLC Conference topics as listed on www.iglc.net


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Table 2.8 - Making the mental shift to IPD (Jackson and Wagner 2009)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Table 2.7 St. Olaf Fieldhouse cost comparison (Ballard and Reiser 2004)


Based on the information you provided:

Factor 1

Your consideration of the purpose and character of your use of the copyright work weighs: in favor of fair use

Factor 2

Your consideration of the nature of the copyrighted work you used weighs: in favor of fair use

Factor 3

Your consideration of the amount and substantiality of your use of the copyrighted work weighs: in favor of fair use

Factor 4

Your consideration of the effect or potential effect on the market after your use of the copyrighted work weighs: in favor of fair use

Based on the information you provided, your use of the copyrighted work weighs: in favor of fair use
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Name: Vera M Novak

Description of item under review for fair use: Table 2.8 - Making the mental shift to IPD (Jackson and Wagner 2009)


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